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THE SOUTH IN MEDICINE AND SURGERY.*

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Fellows of the Medical Society of Virginia, Distinguished Guests and Members of the Woman's Auxiliary:

Five or six years ago following some activity in our local Society in which I had taken a belligerent part, a friend of mine turned and said to me: "I hope to see you President of the State Society some day." I thanked him for the compliment—I had not thought of it before—and thought very little of it then.

Now you have seen fit to elect me to the highest office within your power. Let me assure you I am not unmindful of the honor. But it carries with it a difficult task, not the least of which is the President's address. I do not mind serving on committees and am ready to perform any hard work in the cause of organized medicine—in fact I rather enjoy a scrap with quacks and imposters; but when it comes to making an address—recalling the magnificent efforts of those who have gone before me—I pall at the thought of it.

The South in Medicine and Surgery

The seventeenth or first century of the Colonial era gave no contributions to the science. Medicine was getting away from superstition, charlatanism, spirits and witchcraft; but was largely empirical. There was little knowledge of the causes of disease. The principal universities abroad for studying medicine were Edinburgh, Paris, Leyden, Padua, and London with its clinical advantages for study,—but it was of course hard for the youth of America to go over there for a medical education. Consequently the colonies were overrun with poorly prepared physicians. There were, however, some brilliant men sent over by the London Company, some who also came voluntarily, and others—adventurers perhaps—who floated around from place to place. I will mention only a few of the more outstanding: Henry Kenton in 1603 while exploring Virginia waters in Chesapeake Bay, went ashore and was massacred by the Indians—the first English Surgeon to lose his life on American soil. Among the early distinguished physicians was Theodore Gulstone an Oxford graduate; Peter Turner, Physician to Sir Walter Raleigh; John Woodall, author of the *Surgeons Mate,* which work went through seven editions; Thomas Hood who sailed around the world with Sir Francis Drake; William Russell who saved John Smith's life in 1608; and Thos. Walton, the first Surgeon General of the Colony (1607). John Smith spoke of him as being "skillful."

Dr. Lawrence Bohun studied medicine at Padua, came over with Lord Delaware in 1610, was an expert in the treatment of scurvy by the use of oranges and lemons as a diet. He also bled Lord Delaware and cured him of an ague. He experimented a good deal with herbs. In fact this could almost be spoken of as the *botanic age* since all of the more prominent Physicians were good botanists, and more credence was put in herbs than any other therapeutic measure. He was appointed Physician General to the Colony. We, however, best know him on account of his heroic death, which occurred on his way over to take charge of his post at Jamestown. He was killed in a sea fight with two Spanish men of war. Though the little English ship, the *Mary and John,* put up a good fight and got away, a shot mortally wounded Dr. Bohun. His last words were: "Fight it out brave men, the cause is good, and the Lord receive my soul." He was succeeded (1621) as Physician General of the Colony

*Address of the President at the sixty-seventh annual meeting of the Medical Society of Virginia in Staunton, October 13-15, 1936.

by Dr. John Potts, a Master of Arts of Cambridge, "well versed in Surgery and Physic." He was a member of the Council but lost his seat because it was thought he was responsible for poisoning the Indians. He regained it, however, and was made temporary Governor. He was convicted of hog stealing in 1630 but his sentence was suspended and he was finally pardoned by the King. The whole affair seems to have been more or less a political quarrel.

Another physician was Colonel Daniel Parke, an active practicing physician, but also a large land owner, merchant and lawyer and planter. A few of the physicians of that day were also active in the church. Dr. Walter Whitaker, practicing in Middlesex County, was a Justice, High Sheriff and also a member of the Vestry of Christ Church, and was called both Captain and Doctor.

Under the heading of "barber chirurgeons" of distinction we find the name of Dr. Robert Ellyson, coming to Virginia from Maryland. He was High Sheriff and Coroner in James City County, Member of the House of Burgesses five or six times, was referred to in York County as Captain and also Doctor where he was active as a physician, attorney and public official. I suppose at this time he had closed his barber shop.

We also find the name of Katherine Shrewsbury, a school teacher, who also practiced medicine in Richmond County. I mention this to show that even at this early date the profession was open to both sexes.

In the Colonial period, however, there were in every community three men who stood for education and intelligence, the clergyman, the lawyer and the physician.

Contributions to literature in the eighteenth century.—In Virginia we find the names of John Tennent, coming over from England about 1723. He wrote a great deal, describing the climate and epidemic diseases of the Colony and many articles on the therapeutic value of senega, the virtues of which he seems to have discovered, and which seems to have been his hobby.

John Clayton was a noted botanist and author of *Flora Virginica,* a very popular work on plants.

John Mitchell, M. D., F. R. S., an Englishman, came to Virginia about 1700 and was prominent in the Colony for fifty years. He was an eminent botanist and physician and wrote extensively on medicine, botany and history. He made a study of yellow fever and wrote voluminously on the subject, which description was resurrected and used as a textbook during the epidemic of the disease in Philadelphia in 1793.

The Carolinas also from an early period furnished many contributions to medical literature. It has been authoritatively stated that the names of David Ramsey, Wm. Bull, Alexander Garden, John Lining, James Moultrie, Alexander Barron, and Samuel Wilson will always make the early history of South Carolina illustrious.

John Lining wrote a description of yellow fever which stands unrivaled for accuracy.

Alexander Garden was physician, naturalist and F. R. S. Lennaeus, the great Swedish botanist, perpetuated his name by naming the beautiful odoriferous cape jessamine, the "gardenia," for him. David Ramsay wrote much; a sketch of the soil, climate, weather and diseases of South Carolina; a history of the American Revolution (two volumes); a life of Washington; and a history of South Carolina. Wm. Bull, the first native American to graduate in medicine, taking his degree in Leyden in 1734, wrote an account of the weather. He was known as the learned Doctor Bull, was also active in civic affairs, was assistant Judge, Brigadier General of Provincial troops, member of the Colonial Council, Speaker of the House, Lt. Governor and Governor, was an ardent Royalist, and died in England in 1791.

North Carolina also furnished her share in the early history, among whom may be mentioned Dr. Hugh Williamson, who wrote a great deal on climate and fevers of North Carolina and also a history of North Carolina (two volumes).

Ephraim Brevard (1750-1783), a graduate of Princeton, wrote the Mecklenburg Declaration in 1775.

Nathaniel Alexander, also a graduate of Princeton, was distinguished as a friend of education, member of the House of Delegates, Senate, U. S. Congress, Governor of his State.

In Georgia, Dr. Lyman Hall stands out as a physician, but more particularly as a patriot—the foremost leader in the Revolution, a signer of the Declaration of Independence, and later Governor of Georgia; and Dr. Noble Wimberley Jones, the first President of the Georgia Medical Society is spoken of by Dr. Wm. B. Stevens as "One of the Morning Stars of Liberty in Georgia," and Dr.

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John Grimes wrote of him, "The bedside was his university."

Returning to the beginning of the eighteenth century we approach and finally reach the great heroic age when America and her sons and her physicians come into their own, depending now more and more on herself until she attained, in the latter quarter of the century, absolute independence. In medicine and surgery every one waxed bolder, ventured more, and eventually led the world. These changes were not wrought in a day, but step by step, England herself helping to bring this about. In fact many of the great men in America were born in England, but with unconquerable spirit—the Declaration of Independence even being simply another chapter of the Magna Charta. The greatest physicians and surgeons in America during the century came from or were educated in Europe, especially Great Britain.

In the revolutionary period, among the physicians who distinguished themselves in a professional capacity and military capacity as well, was General Hugh Mercer, a native of Aberdeen, Scotland, an intimate friend of George Washington, and the hero of many battles. He was wounded many times and finally mortally wounded at the battle of Trenton. He practiced medicine in Fredericksburg. His memory is perpetuated by two colleges, and several counties and towns are named for him. Others are: General Adam Stephen, Arthur Lee, Theodoric Bland and Walter Jones from Virginia; David Oliphant and David Ramsay from South Carolina; Ephraim Brevard, Hugh Williamson and Robert Williams from North Carolina; Lyman Hall and Noble Wimberley Jones from Georgia.

Mentioning only a few of the master surgeons and physicians of this period with some of their accomplishments, I will begin with James McClurg, who refused to recognize surgery as equal scientifically with medicine, and yet was unable to make a living at practice of medicine alone. He graduated in medicine at the University of Edinburgh in 1770. His essay "Experiments On the Human Bile" was translated into every language in Europe. He wrote on many subjects, even a poem entitled "The Belles of Williamsburg." Dr. McClurg was elected to the chair of medicine at William and Mary College; maintained the first hospital in Virginia for inoculation of smallpox, and was listed during the Revolutionary War as director of hospitals. He later moved to Richmond where he died in 1825. For a half century he occupied the foremost place in his profession in America.

William Baynham was born in Caroline County, Virginia, in 1749, son of a physician. He was tutored the first five years of his medical career by Dr. Thos. Walker of Castle Hill, Albemarle County, Virginia, who was himself one of the most eminent surgeons in America as well as surveyor, politician and diplomat. Baynham was then sent to London to complete his medical studies. He became celebrated as an anatomist and was considered the best in Great Britain, which is the more remarkable in view of the prejudice that existed towards Americans in England at that time. The best anatomical preparations in the Medical Museum were made by him; one of the human breast, it is claimed, has never been equaled. He had a checkered career in London, and came within one vote of being elected professor of anatomy at St. Thomas Hospital. He came back to America and located in Essex County, Virginia, where he practiced the rest of his life. He was slow and indistinct of speech, could not express himself very well; and for that reason was very much handicapped; but in spite of all that, he was sought after far and wide, was sent for to consult and operate in large cities within and outside of the State, and it has been said that there was not a known operation that he did not successfully perform. He distinguished himself for his operation on cataract, stone and extra-uterine pregnancy. It has been said: "As a surgeon it is probable he had no superior, as an anatomist it is certain he had none." He never graduated, for in London at that date no degrees were conferred; but he was a member of the Royal College of Surgeons, and had in Great Britain the same standing as the best surgeons there. He died in 1814.

John Peter Mettauer, M. A., M. D., LL. D., born in 1782, was another remarkable man but, since he has already been the subject of at least two Presidential addresses in the South, I will only mention a few of his most outstanding achievements and peculiarities. The son of a surgeon who served under LaFayette, he was educated at Hampden-Sydney College, and in medicine at the University of Pennsylvania. He served as surgeon in the War of 1812, and later located in Norfolk but soon returned to

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Prince Edward County. He was called to the chair of surgery and surgical anatomy in Washington Medical College, Baltimore, Md., in 1835,—but only remained one year. Returning, he opened the Prince Edward Medical Institute but later merged his medical school with Randolph Macon College at Boydton. However, he preferred to practice in his native county. In spite of his peculiar personality of always wearing a tall silk hat which it is said he never removed while operating or even when asleep, which hat kept him away from church and in which he was buried, he built up a reputation which has not been equaled before nor since. His pioneer work included amputation of the shoulder, resection of the superior maxilla, and ligation of the carotid artery. He is said to have performed over eight hundred cataract operations and several hundred lithotomies and to have operated successfully for vesico-vaginal fistula in 1838, antedating Sims by fourteen years. He practiced both medicine and surgery up to the time of his death which occurred at the age of eighty-six, in 1868.

I will mention very briefly only two master surgeons of this period from Kentucky, since they have been the subject of such beautiful essays by as equally prominent surgeons of the South. I speak of Benj. W. Dudley and Ephraim McDowell. Both were born in Virginia and each migrated to Virginia's beautiful blue grass daughter State of Kentucky. Dudley was born in Spotsylvania County in 1783, studied medicine at the University of Pennsylvania and then in Europe. He was called the "greatest lithotomist" and had a record of two hundred and twenty-five cases with only three deaths and a series of one hundred without a death. He was at least fifty years ahead of his time in the principles of asepsis and the preparation of patients for operation. He was a bitter opponent of bleeding, which was rife during that period, and never lost an opportunity to denounce it. He was an outstanding teacher, a pillar in Transylvania University. I am impressed with one remark it is related he made with regard to his class, "I would rather be damned than come before a class unprepared." He died in 1870.

I will only take time to mention the name of that other pioneer, Ephraim McDowell, so familiar to you all. He also moved to Kentucky and has the distinction of performing successfully the first ovariotomy (1809). The surgeons of Kentucky have purchased his old home where this great operation was performed to preserve as a memorial to this great pioneer in surgery. I am glad to know that the Woman's Auxiliary of the Southern Medical Association has organized the Jane Todd Crawford Memorial Association to perpetuate the memory of the brave confiding woman who made it possible for Ephraim McDowell to write his name on the pages of immortality. And he operated on her without an anaesthetic—unless it was a nip or two of good old Kentucky rye which I have heard (unofficially) he gave her at the time as a bracer or mild anaesthetic. For a full and beautiful account I must refer you to the President's address at the 1933 meeting of The American College of Surgeons in Chicago, entitled *"Surgeon of the Wilderness—Ephraim McDowell."* This address was delivered by Dr. W. D. Haggard of Nashville.

Coming more into the nineteenth century, it has been said that medicine as a science really commenced with Louis Pasteur (1822-1893) and his discovery of the microbic origin of disease, and with Joseph Lister's practical application of Pasteur's theory. Following this discovery we find the methods of treating all diseases and of performing all surgical operations gradually becoming revolutionized and, in America we find Crawford W. Long of Georgia introducing ether as an anaesthetic in 1842—the greatest boon of the age to the human race in the relief of pain and in enabling the surgeon to open up new fields of work by deliberation in operation.

Another surgeon of outstanding prominence was Paul Fitzsimmons Eve, A. M., M. D., LL. D., born at Augusta, Ga. He graduated at the University of Pennsylvania and published over six hundred articles on professional subjects. He was the author of "Remarkable Cases of Surgery," a book still consulted. He is believed to be the first surgeon in America to perform hysterectomy, was professor of surgery at various times at six medical schools, and was President of the American Medical Association in 1857. It is claimed that he performed 238 lithotomies, was Surgeon General of the Army of Tennessee in the Civil War, and later Surgeon to General Joseph E. Johnston's Army. Such a beautiful sketch of his life has been given under the caption of "Master Surgeons of America," in the April, 1928, issue of *Surgery, Gynaecology and Obstetrics*, that I will not say more.

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J. Marion Sims of Alabama, but born in South Carolina, was an ingenious mechanic like Mettauer and, like him, a resourceful and original surgeon,—a remarkable man from the first. He devised his own instruments, many of his designs in instruments and positions and methods of operation being used to this day and still bearing his name. Lord Lister said of him; "Sims' speculum is immortal; no one has ever made any improvement on it." Moving to New York in 1853, he became internationally known, and founded the Woman's Hospital. His name is a household word among American Surgeons and his autobiography is a very readable book.

Alabama is the only State in which the State Society is a part of the State Government—the Governor being Chairman of the State Board of Health. Alabama is rich with names of distinguished physicians and surgeons, but time will not permit me to go further into the history, except to say one word in commendation of Wm. E. B. Davis of Birmingham (1863-1903). He was original investigator, teacher, organizer, leader and surgeon, one of the South's greatest contributors to the advancement of medicine and surgery. To quote from one who eloquently eulogized him: "After attending the various clinics abroad, he then returned and entered a career, marvelous in its brilliancy, glorious in its achievement, utterly sad in its ending." He was killed in a railroad crossing accident in 1903.

The annals of Louisiana are also teeming with the names of prominent physicians—experts on yellow fever and other diseases, also surgeons of national reputation.

The medical history of Texas, from the days of its independence to the present, is full of names of outstanding authorities in medicine and surgery, some of whom were leaders in military and political affairs as well. A surgeon was a member of the committee that designed the seal and flag in 1839, and the last president of the republic was a physician, Dr. Anson Jones, a descendent of Oliver Cromwell.

The same may be said of the other States. There is no greater medical center in the South than Nashville. Tennessee has the distinction of furnishing five presidents to the American Medical Association: Eve, Bowling, Briggs, Witherspoon and Haggard. To attempt to eulogize her surgeons of the past and epitomize accomplishments of those still living and active would fill a volume.

Several Southern States I have left entirely out of my summary, not that they did not have a medical history worth while, but they were omitted on account of time and space in a short address.

Medical Schools.—The South had few medical schools prior to the Civil War, and most of her students went to Philadelphia to study medicine. There were a few such as Transylvania at Lexington, Ky., organized 1799. I will only say a word about Transylvania. It was active only thirty-five years but, during its short existence, its faculty was at one time the strongest in America, being composed of Saml. Brown (Virginia), Danl. Drake, N. R. Smith, Oliver Perry Hill, Benj. W. Dudley and Chas. Caldwell. Wm. Osler placed three of them among the first five of their day. After the reconstruction period, during the last quarter of the nineteenth century, and up to the present time, medical teaching in the South has rapidly forged ahead and is now equal to the best. The southern student does not now have to go North to get the best medical training, either technical or clinical. And let me emphasize that *he does not have to go to Europe either.* There are now more than 1,500 American students attending medical schools in foreign countries and the standard of some of those colleges is lower than our "A" grade schools. Students going abroad to study medicine had better then beware or they will find themselves debarred from taking the National or State Board examinations when they return to America.

Hospitals.—The American Medical Association, The American College of Surgeons and The American Hospital Association have so raised the standard of hospitals as to make all of the larger ones real teaching institutions, recognized by the various schools of medicine and state examining boards. The South took a very prominent part in this forward movement.

I will mention only a few other physicians from the South who were prominent in northern states: Wm. Edmonds Horner, Joseph Price, Nathaniel Chapman; Thomas A. Emmett, Seneca D. Powell, Wm. A. Pryor, and Jno. A. Wyeth.

In 1881 Jno. A. Wyeth, a native of Alabama, opened the Polyclinic Hospital in New York for post-graduate study, the importance of which is now recognized everywhere. And here in Virginia we are

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making every effort to bring medicine to the general practitioner and increase his opportunities for advancement in study and investigation.

To mention some of the achievements of medicine and surgery in the South we may say that:

The first native American to graduate in medicine was from the South.

The physicians of Charleston started the Charleston Museum—the oldest in America.

A Southern State was the first to establish quarantine; the first to suggest steam in the disinfection of ships. The first American pharmacopoeia, the first autopsy, the first hospital, the first insane asylum in America are all products of the South.

The earliest bill governing medical practice was drawn by a Virginia physician. The South is credited with the first to perform ovariotomy, gastrotomy, the removal of the coccyx, to ligate the carotid artery, the first to operate successfully for vesico-vaginal fistula, the first in America to resect a rib for drainage of empyema and abscess of the liver, also to operate for ectopic pregnancy, to do a hysterectomy, to operate for cleft palate, and for club foot, and the first to perform successfully a hip joint amputation. The first to use ether as an anaesthetic was a southerner.

The first American College to teach comparative anatomy, and take a stand for adequate pre-medical education was the University of Virginia. The first state to legalize sterilization of the insane was Virginia.

The first to discover the cause and work out the scheme for the eradication of yellow fever was a southerner. In the beginning of the twentieth century, when yellow fever broke out among the troops in Cuba, Surgeon General Sternberg of the U. S. Army called for volunteers to investigate its cause. Four surgeons of the army came to the front, all from the South, the commission being headed by Walter Reed with James Carroll, Jesse W. Lazear (non-immune) and Aristides Agramonte of Cuba (immune). It was Walter Reed who thought of the intermediary host. You are all familiar with the result. Lazear deliberately contracted the disease and died a martyr to the cause, but from the investigation, the world is safe from one of the worst scourges in the medical history of all time. The soundness and accuracy of Reed's work was demonstrated by Col. W. C. Gorgas, a native of Alabama, in freeing Havana of yellow fever in a few months —for the first time in 150 years—and in making it possible to build the Panama Canal.

To quote from one of the commentators on the work of Walter Reed: "The inspiration of Reed's life lies in the fact that, though a man of war, he ravaged no distant lands; he destroyed no tens of thousands to make his reputation; but by quiet methods when there was no strife, he saved countless lives, and swept away a hideous plague which from time immemorial had periodically visited our shores and devastated our fair land."

And now a word for organized medicine.

Dr. Saml. Brown, born in Rockbridge County, Virginia in 1769, graduate in medicine of the University of Aberdeen, Scotland, distinguished professor of medicine at Transylvania University, was the first in the country to suggest a national medical organization. His idea was that it would bring men together, and by exchange of ideas tend to promote brotherly love and banish jealously. His idea was to form local societies throughout the country and knit these into a homogeneous body, and establish reciprocity of kindly feelings—fraternal and honorable. His idea never became more than a local move, but it was a forerunner of our American Medical Association.

The whole profession is one grand family of brethren. They are so by the common aim to alleviate the suffering of the human race. They are brothers through a common law of self-protection. Their lives are so intimately associated with sick, distressed and poor, that it is natural to find them sympathetic, and kind; few of them ever get rich, and many of them give away more than they retain; for that reason we find most of them belonging to one or more fraternal organizations, these organizations all having for their motto *Fraternity, Charity, Morality,* and submission to law and order. Hence, we are not surprised to find six prominent physicians members of the first Supreme Council of the 33rd degree, Scottish Rite Masons, when it was organized in Charleston, S. C., May 3, 1801, by Drs. John Mitchell, Frederick Dalcho, Isaac Auld, James Moultree and others.

In conclusion, I wish to stress the importance of this great Fraternal Organization of ours. We cannot all be brilliant pioneer surgeons, investigators, therapeutists or teachers in this great science, but

we can, by sympathy, kindness and close attention to our great obligation to humanity, and by an earnest, intelligent discussion of our problems at these meetings, live out usefully and honorably our little span of life.

Taylor Building.

CARE OF THE FEET IN DIABETES.*

WILLIAM R. JORDAN, M. D.
Richmond, Va.

Gangrene was present in 23 per cent of 686 diabetics dying recently in New York City.[1] Considered in conjunction with the prevalence of diabetes, this illustrates the frequency of this condition, but it does not disclose all the suffering, disability, and expense entailed. Often a minor surgical lesion of the foot will incapacitate and discomfort the patient for months while it slowly progresses until the pain is severe and the patient is bedridden. Months of time lost from work, with consequent loss of income and at the same time increased expense due to medical care, and days and nights of discouragement and pain, gradually destroy the hope and strength of the patient. Gangrene and infection tend to spread and death ensues. Even if operation is done, the loss of a leg or even of both legs makes life a greater burden to the patient.

Gangrene is preventable in many, if not most, cases. The application of simple rules of hygiene and the prompt and correct surgical treatment of each lesion when it first appears will postpone or prevent such disastrous situations as those mentioned above. In Dr. Joslin's practice, education of the patients has already borne fruit. One-third of his cases with foot lesions now come to the hospital early enough to avoid operation. Of those requiring amputation, 80 per cent had not consulted him previously, and of his former patients in this group the average length of time since the preceding visit was 2.7 years. Regular visits by the patient for examination, treatment and instruction by the doctor tend to prevent trouble. By such means the mortality from gangrene has been reduced 16 per cent, but this represents only a small part of what can be accomplished if we continue our efforts.

That the incidence and mortality of gangrene remain high is a lamentable fact. More widespread use of methods to prevent and treat the apparently trivial lesions that lead to gangrene will be of marked benefit. Examination of the feet at every visit of the patient and emphasis on the importance of proper care of the feet should be made. At present one notices a look of tolerant amusement on the face of the patient who is asked to expose his feet for examination. Frank skepticism of the sincerity of the doctor is the response to the criticism that the nails have been trimmed too closely. Amazement follows reiteration of the statement. Nevertheless, persistence in these examinations and suggestions usually convinces the patient of their importance, and then co-operation in this care is given. It has been said that it is more important so see the feet than the face of the diabetic patient.

The time to begin the treatment is when the patient is first seen. Although 97 per cent of the patients with gangrene are past 50 years of age, the blemishes leading to gangrene are often formed in early life. Small calluses or corns and athlete's foot make the feet vulnerable, and neglect during the period of decreasing vascular efficiency precipitates serious disease. Cleanliness, correction of preformed defects and immediate attention to all lesions will prevent or at least postpone severe infection and gangrene.

The feet should be washed thoroughly each day with plenty of soap and water. Such advice may seem unnecessary or even insulting to many people, but to others it will be timely and to some it will appear absurd. I have seen a man come to the hospital with gangrene and infection of a foot from which neither the shoe nor sock had been removed for more than a week. Nor did it appear to him that his conduct had been unusual. After washing, drying the feet thoroughly by gentle pressure of the towel is needed. Sawing the towel harshly between the toes may rub off tender or damaged skin and expose the raw flesh in which infection may arise. A smooth orange wood stick is prefer-

*Presented at the Southside Virginia Medical Association, June 9, 1936.

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able in cleaning the nails to a sharp steel file which may cause an abrasion or puncture. The nails should be trimmed often so that they need not grow long or be cut short. They should be cut almost straight with corners intact to prevent ingrowing. This should be done only when the feet and instrument are clean, so as to avoid danger of infection in case the skin is damaged. Some patients have such poor vision, or nerve, muscle or joint trouble that they cannot tend to their feet properly. These people are usually elderly and have poor circulation in the feet, and they should obtain the services of a younger relative or of a chiropodist.

The selection of socks and shoes is important. Socks should be large enough to permit the natural position of the toes and not large enough to wrinkle and form a blister. Socks with holes or coarse seams or rough darns are undesirable for similar reasons. A dirty sock means a dirty foot. It is a comparatively easy task to wash socks or stockings each night and to use a fresh pair daily. Shoes need to be chosen with even more care, because they last longer. It is not sufficient that the shoe fit, but it must have a smooth lining and the shape should be maintained. If the heels wear down too far, pressure and strain occur, and trouble is apt to follow. One seldom obtains shoes which fit perfectly. One pair exerts slight pressure on some spot which is unaffected by another pair. For that reason it is well to wear one pair of shoes for a few days and then use the other pair, thus preventing continuous pressure on any one place. New shoes should be worn only one-half hour the first day, one hour the next, and an additional hour each succeeding day of wear until one knows that they are suitable. It is more economical to discard a poorly fitting shoe than it is to wear it, because a shoe costs a diabetic only about five dollars but a sore foot costs about five hundred dollars.

A corn and callus by pressure causes local irritation and ischemia so that necrosis and infection may occur. Similarly a bunion or hammer toe increases the danger of infection. Prevention of these deformities is accomplished by the above hygenic precautions, save in some instances where arches are weak and excessive pressure occurs at unusual places. Exercises for strengthening the arches are helpful in the latter cases. Curling and spreading the toes, rotation, flexion and extension of the feet, and ending the stride on the toes rather than on the ball of the foot should be employed daily. Results go unnoted for weeks or even months; but, as time goes on, improvement becomes abvious. The treatment of the corns and calluses is removal of the causative factor such as ill-fitting shoes, and the application of lanolin daily to the calloused area. Twice a week the feet should be soaked in warm water long enough to soften the dead skin which is then removed by rubbing judiciously with gauze or a nail file or emery paper. If the skin of the feet is too tender and fragile, alcohol should be applied daily until toughening occurs. If conservative measures fail to correct the offending lesion, surgery should be resorted to before vascular disease makes it dangerous. However, it is surprising how much can be accomplished by the use of soap and water, a little grease, and properly fitting shoes. An extremely vulnerable foot can be converted into one that may never give trouble. Thick calluses disappear and do not recur. Ingrowing nails are corrected. The shape of the foot, the position of the toes, and the appearance of the skin conform quite closely to the normal.

Epidermophytosis with coarse nails and soft corns leads to many amputations. In addition to the daily bath, thorough drying, and clean socks, one must often employ other methods to combat this stubborn disease. The liberal use on the feet and in the shoes of talcum containing one per cent salicylic and benzoic acid is sometimes adequate. More often some stronger remedy must be used. The daily application of a petrolatum ointment containing 6 per cent each salicylic acid and sulphur should be continued until there is apparent cure of the disease. It is important to apply this not only on all obvious lesions and between and under the toes, but also around the entire nail bed. After the disappearance of the lesions, applications should be continued indefinitely twice a week to prevent recurrence. Occasionally, one needs to alternate some other fungicide with this ointment, using one for two or three weeks and then the other for a similar length of time. Reinfection or exacerbations are the rule, and persistent care is essential.

One of the most difficult conditions to combat in caring for the feet is deficient circulation. Vascular disease makes much more serious any lesion occurring on the feet. Such vascular disease may

be detected by palpation of the arteries, especially the dorsalis pedis, for sclerosis and pulsation. The dusky appearance of the dependent foot and the rapidity of blanching on elevation indicate sluggish blood flow. The temperature of the skin is significant, and abrupt change at any level is of serious import. A minor infection may become a fatal lesion under these circumstances. The treatment in such cases should be prompt and careful. Removal of a callus, which in a younger patient would be a trivial matter, in these patients may result in death. Treatment of the diabetes according to the most modern methods should be given promptly and should be adhered to meticulously in order to lessen the danger of arteriosclerosis. The onset and course of this vascular degeneration is so insidious that it goes unnoticed until far advanced. We should therefore devote all our energy and skill to its prevention. It is a good rule for all diabetics to refrain from crossing the legs after they attain the age of forty years. Constriction of any kind, such as from round garters, should be avoided. Exercises, particularly those described by Buerger, are of help in maintaining or restoring circulation. Buerger exercises are carried out with the use of a board described by McKittrick and Root.[2] This board enables the patient to elevate the legs until blanching occurs. He then lowers them until slight cyanosis is noted. This is followed by a five-minute rest period with the patient lying on the bed. Each such cycle requires about ten minutes and these exercises should be employed for an hour, two or three times daily. The time and trouble expended are warranted by the benefit derived.

Neuritis is another complication that bears mention. On account of the pain produced, heat is often applied, yet decreased sensitivity of the skin of these patients robs them of the warning pain of burns, so that severe burns may occur without the knowledge of the patient. This is a real danger and every patient should be reminded of it, especially the older ones with impaired circulation, in whom degenerative neuropathy is usually found. Sometimes trouble arises in these people due to irritation from sock or shoe. They feel no pain and are unaware that a blister has formed until the feet are exposed and the blister or abrasion seen. Trophic ulcers of nerve origin are mentioned by many authors. These are usually bilateral, symmetrical and often painless. In all diabetics with deficient circulation or damaged nerves, avoidance of all irritants is imperative. Hot water bags, especially of the chemical type, electric pads, iodine or other chemical irritants are interdicted. The number of patients with gangrene or infection following such burns is enormous. Even a seemingly harmless procedure, such as taking a hot bath, can be dangerous to elderly diabetics. Not only is sensation diminished but the skin is more vulnerable so that a relatively mild irritant may cause a severe lesion.

Prevention and care of foot ailments in diabetics are dependent on control of the diabetes. Not only must the blood and urine sugar be controlled but also the diet must be sufficiently liberal to maintain good health. It seems likely that too great restriction of the starches leads to early degeneration of the arteries. If the sugar is not controlled properly, healing of wounds is apt to be slow. Furthermore, attention to other systemic conditions such as anemia must be given. Exercise, even to bedridden patients, is of much use. Co-operation between the physician and surgeon contributes to the ease of treatment as well as to the welfare of the patient. In most cases, benefit is derived from joint visits to the patient by both doctors. The surgeon may point out that drainage and healing are more rapid than usual and thus enable the physcian to reduce the insulin dosage quickly enough to avoid hypoglycemia. The physician at times finds increasing severity of the diabetes, which the surgeon by more careful examination may find is due to a previously undiscovered pocket of pus. Thus the treatment of the two conditions cannot be separated entirely. But in our interest in these major lesions let us not forget that attention to the trivial precursors is more effective, if also more tiresome, than the most skillful handling of their ultimate effect—to-wit, gangrene.

REFERENCES

1. Joslin, E. P.: The Treatment of Diabetes Mellitus. Philadelphia, Lea & Febiger, 1935, Ed. 5.
2. McKittrick and Root: Diabetic Surgery. Philadelphia, Lea & Febiger, 1928.

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MALIGNANT NEUTROPENIA.*

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Thirteen years have now elapsed since Shultz,[1] in Germany, described a group of cases with unusual clinical and hematological findings. All of these cases presented an extreme leucopenia with an especial deficiency of the granulocytes. All of Shultz's cases occurred in middle aged women and were characterized by sudden onset, rapid course, malaise, jaundice and extreme prostration. He termed the condition "agranulocytosis." The following year Friedemann[2] reported a similar group, emphasizing particularly the presence of necrotic ulceration of the oral cavity. He applied to it the name "agranulocytic angina."

Since these reports of Shultz and Friedemann hundreds of cases of a similar condition have been reported from all parts of the civilized world, but by far the larger proportion of cases has been recorded in Germany and the United States. Lovett[3] reported the first case in this country in 1924. The original clinical picture as described by Shultz has been considerably modified. The disease has been found in both males and females of all ages. Chronic cases have been described as well as the acute fulminating ones. The necrotic lesions of the oral cavity are not always present. The one constant finding, however, is still a profound leucopenia with a total, or almost total, absence of the granulocytes, and with relatively little change in the early stages in the number of the erythrocytes or of the thrombocytes. The advanced clinical picture of the disease is simulated by other conditions associated with a severe degree of leucopenia, such as overwhelming sepsis, aleukemic leukemia, aplastic anemia and arsphenamine poisoning. In fact, this last condition does not differ in any essential particular from idiopathic agranulocytosis, except that its etiology is known. The following case illustrates this point:

A colored girl, age nineteen, was seen on August 11, 1921. She had been given five doses of 0.9 gm. each of neoarsphenamine between July 12 and August 2. Following the fifth injection on August 2 she experienced a slight chill followed by rise of temperature. Two days later her temperature rose to 102 and she complained of soreness of the mouth. When seen on August 11 she was profoundly ill with fever, prostration, jaundice and advanced ulcerative stomatitis. Her blood picture was remarkable. There was a severe secondary anemia with 43% hemoglobin and 3,300,000 erythrocytes. The leucocytes were reduced to 1200 with 1.5% neutrophilic and 2.5% basophilic granulocytes. The small mononuclears were relatively increased (45%) but absolutely decreased (540). The patient was given a transfusion of 400 c.c. of citrated blood, following which she made a fairly rapid recovery. Twelve days later she was clinically well with hemoglobin 74%, leucocytes 5,500 and granulocytes 65.5. In January, 1922, her blood picture was entirely nomal.

TABLE I.

				Granulocytes		Small Mononuclears	
	Hgb.	*R.B.C.*	*W.B.C.*	*%*	*Absolute*	*%*	*Absolute*
August 11-21	43%	3,300,000	1200	4	48	45	540
August 24-21	74%		5500	65.5	3602	29	1595
January 23-22	89%	4,530,000	8800	67	5896	27.5	2420

This case, except for the presence of a rather severe anemia and the fact of a known etiology, is similar in all respects to cases of idiopathic agranulocytosis.

It should be emphasized, that any condition associated with profound leucopenia and granulocytopenia may present the same symptom complex. The usual late manifestations of all of these conditions, such as sepsis, bronchial pneumonia and necrotic ulceration of the mouth and vaginal tract arise from one cause, namely, the breaking down of normal tissue resistance to invasion following a primary reduction of the leucocytes, especially those of the granular series. In the final analysis the differential diagnosis must be based principally upon the blood findings, although the history may be of considerable importance. Sepsis or pneumonia may be either primary with secondary toxic leucopenia, or secondary to the failure of body resistance.

A man, age 59, was admitted to the Norfolk Protestant Hospital with an acute lobar pneumonia,

*Read before the Norfolk County Medical Society.

Group III. His initial leucocyte count was 11,000 with 85% granulocytes. On the third hospital day it fell to 5,200, on the fourth to 4,000 and on the fifth to 1,800 leucocytes with 80% granulocytes. On this day injections of liver extract were begun. On the sixth hospital day the leucocyte count increased to 3,200, and on the seventh to 4,400 with 98% granulocytes. In forty-eight hours the absolute number of granulocytes increased from 1,440 to 4,312. This patient died on his eighth hospital day.

A woman, age 41, was admitted to the Norfolk Protestant Hospital with clinical signs of lobar pneumonia. She was in extremis on admission and died within two hours. Her leucocyte count was only 650 with 50% granulocytes. Her history brought out the fact that three days before admission she had complained of fever, malaise, weakness and sore throat. Symptoms of pneumonia developed only about twelve hours before admission to the hospital. If a blood count had been made at the time of her first symptoms, no doubt a profound leucopenia would have been found. In this instance it seems probable that the leucopenia was primary and the pneumonia secondary.

Differentiation of aleukemic leukemia and agranulocytic angina can be made on the basis of the blood picture. Leukemia, even in the aleukemic stage, is characterized by the presence of pathological granulocytes. Myelocytes are not found in agranulocytosis except during the stage of active regeneration. At this time I have seen the myelocytes increased to fourteen per cent. In leukemia there is usually no material decrease in the absolute number of lymphocytes; in agranulocytosis the decrease in the absolute number of lymphocytes is almost as striking as the decrease in granulocytes, as has been pointed out by Fitz-Hugh.[4]

The problem of differentiating between aplastic anemia and agranulocytosis may be a difficult one. The typical case of aplastic anemia has quite characteristic features. There is a severe depression of all of the formed elements of the blood. The anemia is severe; the thrombocytes are decreased to a point where purpura or spontaneous bleeding from the mucous membranes occurs; the leucocytes are diminished to two or three thousand but the counts are usually not as low as those seen in agranulocytosis; the granulocytes are markedly diminished but usually not absent. The lymphocytes, while relatively increased, are present in their normal absolute numbers and are not diminished absolutely as in agranulocytosis. There are numerous instances, however, where the differential diagnosis is difficult.

Contrary to the early teaching, anemia does develop in agranulocytosis if the course of the disease is prolonged enough for injury to the hemopoietic centers to manifest itself in the circulating blood. The failure in the erythrocytes lags well behind the decrease in the granulocytes. The following record of a case previously reported illustrates this:

TABLE II.

	Hgb.	*R.B.C.*	*W.B.C.*	*Granulocytes*
April 23	92%	4,690,000	7,000	71.5%
July 15	90	4,410,000	1,200	12
July 16			1,060	2
July 18	74	3,640,000	3,500	38
July 20	73	3,500,000	3,700	31
July 26	84	4,420,000	7,600	67

This phenomenon may be explained on the basis of the difference in length of life in the circulating blood of the leucocyte and the erythrocyte. This same tendency for the hemoglobin and the erythrocytes to fall, even after the leucocytes have returned to normal level, will be pointed out in another case later. There is little data in the literature on the behavior of the thrombocyte in agranulocytosis. In the early stages of the acute disease they are usually normal. In a number of instances of more chronic cases a fall to a fairly low level has been noted.

Fitz-Hugh has drawn a rather striking parallel between agranulocytosis and pernicious anemia, and has suggested that the leucopenia results from maturation arrest in the bone marrow due to the lack of some stimulating factor. He supports this conception with evidence of granulocytic hyperplasia of the bone marrow in certain cases dying of the disease. Other workers have reported an aplastic condition with degeneration of the bone marrow. These conflicting findings may be correlated if we assume that the primary factor is an arrest of the bone marrow function of maturing and discharging granulocytes, just as its function of maturing and discharging erythrocytes is arrested in pernicious anemia. This arrest of leucopoietic function in tissue may be due to the absence or decrease of a factor usually supplied by some other organ in the body. As Beck[12] has pointed out, the site of the primary onset of the disease may, therefore, not be in the bone marrow at all but in the organ or organs supplying the substance essential to the growth of the leucocytes.

XUM

It would seem important then to study carefully the early manifestations of the disease if we are to gain insight into its etiology and if we are to evolve a rational therapy. In the late stage the clinical and pathological picture is much confused by secondary factors. The effectiveness of therapy directed to correction of the primary defect may be totally vitiated by these secondary conditions, just as the underlying pathological changes that initiated the process may be largely obscured. This point is illustrated by the wide variation in bone marrow findings. These descriptions vary from a hyperplastic bone marrow crowded with immature leucocytes to a degenerative marrow devoid of functioning myeloid tissue.

The early symptoms of the disease before the stage of secondary invasion are not especially characteristic but are symptoms that may be found at the onset of almost any acute infection. At this time the diagnosis can only be suspected clinically and can only be confirmed by examination of the blood. During what may be called the prodromal period, the patient complains of lassitude and fatigue. He may experience chilly sensations, or actual chills, with rapid rise of temperature. Frequently there is intense general aching and the prostration may be severe. There may be slight soreness of the mouth and throat and slight enlargement of the glands of the neck. It seems probable that this stage is preceded by a symptomless period during which a rapid fall of the leucocytes is taking place. If a diagnosis is made at this point before complicating infections have occurred, and before the degenerative lesions of the bone marrow have set in, it might be possible that therapy would be much more effectual. The following case, which was diagnosed early and which presented no complicating infection, is worth reporting:

A young white woman, age nineteen, had been under observation for nearly two years on account of a rather mild infectious arthritis. On April 13, 1935, a complete blood count was made, showing a perfectly normal picture; hemoglobin was 95 per cent, erythrocytes 4,390,000, leucocytes 6,000; granulocytes 57.5 per cent, small mononuclears 33 per cent, large mononuclears 7 per cent, transitionals 2.5 per cent. Seven days later the patient complained of general malaise and especially of severe aching in the bones all over the body. On examination the temperature was elevated to 99-3/5, pulse 100, but, aside from the slight arthritic changes that still persisted, the examination was entirely negative. The gums were normal, the throat was clear, there was no soreness of the muscles in the neck and no swelling about the neck. The following afternoon the patient had a chill with a rise of temperature to 103. At this time she complained of soreness on both sides of the neck and slight soreness of the gums. It was noted that the gum margin about three of the teeth was slightly swollen and spongy and that the gums at this point were covered with a silvery membrane. The blood count taken at this time showed 600 leucocytes with 12 per cent granulocytes. Treatment with liver extract intramuscularly was immediately instituted. This was followed by a rapid subsidence of the temperature to normal and by marked subjective improvement. The change in the blood picture, as shown in Table III, was striking and rapid.

While there was apparently little change in the hemoglobin and erythrocyte count at the time of the sudden drop in the leucocytes, it appears that a subsequent fall in both of these elements did take place. This same tendency for the fall of the hemoglobin and erythrocyte count to lag well behind the fall of the leucocytes has been noted in other cases. This suggests that the action on the bone marrow is not limited to the leucopoietic centers but affects the erythropoietic centers as well. This last effect is masked by the fact that, due to the longer life of the erythrocyte, anemia will appear much more slowly than leucopenia. Conversely, restoration of the normal

TABLE III.

				Granulocytes		*Small Mononuclears*		
	Hgb.	*R.B.C.*	*W.B.C.*	*%*	*Absolute*	*%*	*Absolute*	*Platelets*
April 13-35	85	4,390,000	6,000	57.5	3450	33	1980	
April 21-35			600	12.0	72			
April 22-35	90	4,560,000	2,300	48.0	1004	48.0	1004	
April 23-35	92	4,980,000	3,100	41.0	1271	52	1612	205,000
April 24-35	93	5,130,000	4,700	50.0	2350	50	2350	33% Staff
April 25-35	89	5,150,000	4,600	41.0	1886	50	2300	
April 27-35	90	4,800,000	4,600	58.0	2668	37	1702	172,000
May 9-35	86	4,490,000	4,400	44.5	1958	50.5	2222	
May 14-35	78	4,020,000	6,200	54.5	3369	40.5	2511	

leucocyte level can be accomplished more quickly. Studies of blood slides during the period of recovery showed that there was a large increase in the number of staff cells, the percentage rising as high as 33 per cent of the total leucocyte count, or 66 per cent of the total number of granulocytes. This would appear to indicate that the increase in the leucocyte count was due to discharge into the circulation of newly matured cells from the bone marrow and not to mobilization from the spleen or other reservoirs. It is of interest that this patient had been taking none of the drugs that have been under suspicion as an etiological factor in this disease.

This patient, without known cause, developed an acute condition characterized by fever, chills, severe malaise, profound leucopenia and granulocytopenia. A diagnosis was made within twenty-four hours from the onset of the initial symptoms. Already the beginning of secondary invasion of the gums was apparent but treatment was not hampered by secondary disease. Following injection of liver extract there was a dramatic change in the patient's clinical condition and a rapid increase in the number of circulating leucocytes.

A similar opportunity to observe the very early signs and symptoms of the disease occurred in a case previously reported.[5] In this case the patient was seen at the beginning of relapse and before any secondary invasion had taken place. The same clinical and hematological results followed the intramuscular injection of liver extract.

It seems reasonable to assume that the leucopenia is due to failure of maturation of the cells in the leucopoietic centers; that the remedy is the introduction of a factor that will aid in maturation, and, further, that this factor must be introduced early if it is to be completely effectual. If treatment is delayed, the patient contracts and dies of secondary infection, or the bone marrow undergoes irreversible degenerative changes. Failure of any form of therapy, complete or relative, may be expected late in the disease. Only in the early, uncomplicated cases can a fair appraisal of the effectiveness of a given form of therapy be determined.

The etiology of the disease is still obscure, although the theory advanced by Madison and Squier[6] and by Kracke and Parker[7] has received much attention. Madison and Squier reported fourteen cases of agranulocytosis in all of which the onset of the disease had been preceded by the use of amido-pyrine, either alone or in combination with one of the barbiturates. They further report that all six patients allowed to continue the use of amido-pyrine died, but in eight cases in which the drug was discontinued only two died. In two instances patients who had previously had an attack of agranulocytosis were given amido-pyrine in doses of five to seven grains and in both cases there was an immediate and severe fall in the granulocytes. Of eighteen rabbits given the drug by mouth, intramuscularly or intraperitoneally, one developed a marked leucopenia with complete absence of granulocytes in the bone marrow and in the circulating blood.

Kracke and Parker[8] have implicated various drugs having as a nucleus the benzene rings, especially those with an attached amine group. This list includes such drugs as amido-pyrine, arsphenamine, neoarsphenamine, phenacetine and acetanilid and many compounds containing amido-pyrine. They have shown that oxidation of all of these substances produces certain common intermediate and end products and they attribute their depressing effect on the bone marrow to these products. They have been able to obtain a severe leucopenia with absence of granulocytosis in a small number of rabbits injected with these split products but introduction of the drugs themselves into rabbits has shown only negative results.

This theory as to the etiology of agranulocytosis is supported by numerous observers, notably Hoffman, Butt and Hickey, Fitz-Hugh, Randall and Holton, Neilson and Trausdale.

The evidence cited may be summarized as follows:

1. In many cases there is a history of the use of one of these drugs for a longer or shorter period of time before the onset of the disease.

2. Most of the cases have been reported from the United States and Germany where coal tar drugs are more generally used.

3. The incidence of the disease is unusually high among doctors and their relatives, nurses and laboratory workers.

4. The incidence is higher among those individuals who are economically independent than among the lower classes, the presumption here being that the well-to-do indulge themselves in self-medication with these drugs.

XUM

This evidence so far is more circumstantial than real. Amidopyrine has been available in this country since 1910 and in Germany since 1897. The first cases of agranulocytosis were reported in Germany in 1922 and in this country in 1924. The onset symptoms of the disease are of such a nature as to lead to the therapeutic use of these drugs at the time. Since several days may elapse between the prodromal symptoms and the onset of the characteristic signs and symptoms of the disease, a false assumption may be made as to the role played by the drugs given. Furthermore, these drugs are in such common use that the chances are very great that a large proportion of sick individuals would take one or more of them.

The high incidence of the disease among physicians and their camp-followers as well as among the well-to-do may be explained by the increased probability of an individual of these groups having examination made of his blood in a case of serious illness. It is admitted that there are a considerable number of cases in which no historical evidence has been obtained of the ingestion of any of the drugs.

Numerous other theories of causation have been advanced. The various bacterial invaders have been suspected, but it is now generally concluded that these organisms are merely secondary factors. Dennis[9] was able to produce leucopenia in rabbits by implanting intraperitoneally live cultures enclosed in gelatin capsules. He felt that the liberated toxin of these organisms rather than the organism itself was responsible for the blood changes. His results have not been confirmed by other investigators. Cases have been reported following typhoid vaccination and in association with kala-azar and miliary tuberculosis. The development of a disease similar to idiopathic agranulocytosis has been repeatedly noted following the injection of arsphenamine and the gold salts.

There is certain evidence that points to the liver as the primary site of the disease. The association of jaundice in cases of arsphenamine poisoning and leucopenia is well known. Shultz in his original report emphasized the presence of jaundice in his cases, and jaundice has repeatedly been noted in case reports since then. One might postulate that a liver already injured would be susceptible to further injury with drugs, heavy metals, or bacterial toxins. Injury to the liver might be followed by failure of the normal stimulation of leucopoiesis and then by a rapid fall in the leucocytes. Investigation of the effect of these various substances on animals in which liver injury has been produced may be a profitable field for investigation.

Treatment must remain unsatisfactory as long as the etiology is obscure. Transfusion, irradiation of the long bones, Strumia's leucocytic cream, pentose-nucleotide and liver extract all have their advocates.

Transfusion may be beneficial and is not contraindicated. Its value is due to the well-known stimulating effect on the bone marrow of transfused blood and the hope that the blood of a healthy donor may contain some substances that the patient lacks.

X-ray therapy is based on the belief that stimulating doses of the ray hasten the maturation of the myeloid cells, and on the conception that the bone marrow is stimulated by the released nucleid substances from dead white cells. Proof that this treatment is valuable in agranulocytosis is lacking.

Strumia[10] has reported excellent results with his leucocytic cream. In ten cases treated by intramuscular injections of leucocytic cream, an increase of the granulocytes together with clinical improvement was obtained in nine cases.

Pentose-nucleotide (commercially known as pentnucleotide) was introduced in 1931 by Jackson,[11] Parker, Rinehart and Taylor. Jackson, Parker and Taylor report 74 per cent recoveries in sixty-nine cases treated.

Treatment with leucocytic cream and with pentnucleotide is based on the conception that the released nuclear material from disintegrating white cells acts as a stimulant to the maturation and release of new granulocytes. This idea arose from the observation of Sabin,[13] Solm, Doan, Cunningham and Kendwall that an increase of young granulocytes followed the disintegration of old non-motile leucocytes.

The use of liver extract was suggested by the observation that in pernicious anemia there is a marked response of the leucocytes as well as the erythrocytes following the introduction of liver extract by mouth, intramuscularly or intraperitoneally. In fact, the first response to liver therapy in pernicious anemia is the increase in the granulocytes. In fourteen cases of pernicious anemia treated by me with liver and in which a record of the leucocytic response was kept, there was an average increase

of 55 per cent of the total leucocyte count and of 95 per cent in the granulocytes. Foran, Sheaff and Trimmer[14] reported five cases treated with liver extract with recovery. Last year I reported three cases[5], with recovery, treated with liver extract intramuscularly and tonight have added one other.

I believe that no form of treatment will be effectual after severe bone marrow degeneration has set in, nor will treatment probably be effectual in the presence of severe secondary infection. The well-known depressing effect of infection on the action of liver extract in the treatment of pernicious anemia and on insulin in the treatment of diabetes probably holds true in relation to any specific therapeutic weapon we may employ in the treatment of agranulocytes.

It would seem to me that early diagnosis and early institution of treatment is the most important single factor that may affect the mortality rate of this disease.

REFERENCES

1. Shultz, Werner: *Deut. Med. Mchnschr.*, 48: 1459-1596, 1922.
2. Friedemann, U.: *Med. Klin.*, 19: 1357-1359, 1923.
3. Lovett, E. R.: *J. A. M. A.*, 83: 1498, November 8, 1924.
4. Fitz-Hugh, Thomas, and Krumbhaar, E. B.: *Amer. Jour. Med. Sc.*, 183: 104, January, 1932.
5. Martin, Walter B.: *Amer. Jour. Clin. Path.*, 4: 438, September, 1934.
6. Madison, Frederick W., and Squier, Theodore L.: *J. A. M. A.*, 102: 755, March 10, 1934.
7. Kracke, Roy R., and Parker, Francis P.: *Amer. Jour. Clin. Path.*, 4: 453, November, 1934.
8. Kracke, Roy R., and Parker, Francis P.: *Jour. Lab. and Clin. Med.*, 19: 799, May, 1934.
9. Dennis, E. W.: *Proc. Soc. Exp. Biol. and Med.*, 30: 336, December, 1932.
10. Strumia, Max M.: *Amer. Jour. Med. Sci.*, 187: 527, April, 1934.
11. Jackson, H., *et al.*: *J. A. M. A.*, 97: 1439, November 14, 1931.
12. Beck, R. C.: *Arch. Int. Med.*, 52: 239, August, 1933.
13. Sabin, F. R., *et al.*: *Bull. Johns Hopkins Hosp.*, 37: 14, 1925.
14. Foran, F. L., Sheaff, H. M., and Trimmer, R. W.: *J. A. M. A.*, 100: 1917, 1933.

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THE ROLE OF THE GENERAL PRACTITIONER IN THE PREVENTION AND EARLY TREATMENT OF MENTAL DISEASES.*

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In recent years the greatest advances in medicine have been along preventive lines. Typhoid fever has been, in a large measure, eliminated through immunization and corrected methods of sanitation; malaria has been stamped out by the elimination of mosquitoes, and the former prevalence of small-pox has been reduced to an extreme minimum by the use of vaccines. How have these changes been brought about? By the education of the general public in the principles of preventive medicine. While all these steps are being made in the advancement of the physical health, we find that there has been very little done for the benefit of the unfortunate individual who is suffering from mental disease, or, as it is expressed by the laity, insanity. The reason for this is the extreme difficulty the average individual encounters when he tries to probe into and understand just what is taking place within the psychotic mind. Before trying to help these individuals, and they all must be treated as individuals rather than as a group of persons with similar diseases, we must try to understand them and gain their confidence. We must get away from the idea of a man who is "possessed of devils" and direct our attention toward the patient who is mentally sick and who is as much in need of careful attention from the medical profession as the one who has appendicitis or pneumonia.

In dealing with the prevention and the care of early or border-line cases of mental disease, it first becomes necessary to make some attempt at classi-

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fication of psychoses. For the purpose at hand they may be separated into two groups,—the inorganic and functional psychoses, and those resulting from some organic change that has taken place in the individual. In the first grouping, we may place dementia praecox, manic depressive psychosis, paranoia, and the various psychoneuroses. Among the organic psychoses we may place arteriosclerosis, senility, paresis and those mental disturbances brought about by either inflammatory or neoplastic processes involving the central nervous system.

As in all disease processes, it is impossible to discuss intelligently the prevention and treatment of mental disorders without first considering the etiology of the conditions. It has long been recognized that heredity plays a primary role in mental disease. I do not mean to state that mental disease is inherited as blue eyes or brown hair, but that the psychotic individual does inherit a mental instability which renders him unable to cope with the ups and downs encountered in the daily routine of life. How, then, shall we approach such a complex problem as this? The only avenue open is in the education of the public in the causes of mental disease. Many States have already adopted a system of physical and mental examination prior to the issuance of marriage licenses. Bureaus have been established for the purpose of child guidance and trained workers are being placed in the field to aid the psychotic and pre-psychotic individual in working out a more perfect adjustment with his environment. I cannot emphasize too strongly the necessity for the personnel engaged in this work, not only to be thoroughly trained, but also to have a sympathetic and comprehensive understanding of the individuals under their care. Thus it is seen that the prevention of mental disease is not a problem which can be solved by an individual or small group, but one which must be met by the aid and support of the entire population of the country.

The more acute problem which the practitioner of medicine has to face is the question of what to do with the psychotic individual who has come under his observation. In many instances, where the mental disturbance is of such a nature that it is impossible to care for the patient at home, hospitalization is the only recourse. There are, however, many of the milder or border-line cases which may be successfully treated by the family physician at home. The chief difficulty here lies in the fact that the onset of most mental disease is so slow and insidious, that changes in personality and conduct are not noted even by members of the immediate family until the disease has become quite firmly rooted. Then, in retrospect, it can be seen that the patient's behavior has long ago shown some slight departure from the normal.

In discussing the early care of mental disease it would, perhaps, be best to consider a few of the most prevalent psychoses and deal with these individually, rather than to attempt to review all psychoses in general. In recent years, hospitals all over the country have reported a large increase in the admission rate of patients suffering with mental changes incident to advanced age, namely, senility and arteriosclerosis. Some of these are truly in need of hospitalization, while others, forced into hospitals by the pressure of economic situations, are merely in need of nursing care. It is in this type that the general practitioner can render necessary and effective service. In order to make any progress, he must first gain the confidence of the patient and the co-operation of the family. Should he be so fortunate as to come into contact with the disease in its beginning, his burden is made much easier. He should explain to the patient the nature of his disease and show him the necessity for the curtailment of a part of both his mental and physical labor. The patient should continue with his work as far as possible, but should have certain hours of the day set apart for rest and relaxation. The proper regulation of elimination is of the greatest importance. The preparation of a bland diet, which can be both digested and assimilated, should be stressed. Many persons with senile and sclerotic changes are fed a diet that apparently meets every need, but which is of very little value because they cannot utilize it. This fact is clearly illustrated by the fondness for sweets so often found among older persons. They have found that these easily assimilated foods are most effective in appeasing their hunger.

When we come to the treatment of dementia praecox, we meet with a much more difficult problem. This condition, in the majority of cases, must receive hospital care. The hope for a more normal adjustment in later life, however, may be greatly increased by the proper attention during the incipiency of the disease. The physician must gain the confidence of the patient and try to reason out his

difficulties with him. To treat lightly, or to deride the delusions of a schizophrenic, is to cause a tremendous damage which cannot be corrected later on. Such a procedure serves only to cause the individual to withdraw further into his protective sphere of seclusion and build up a spirit of resentment and antagonism against his environment. Individuals showing schizoid tendencies should be encouraged to take on a greater interest in outside activities and to participate in community affairs as much as possible. He should cultivate associations with friends and neighbors. In short, any procedure by which he may be made to develop outside interest and to exclude his own worries is of immense value.

The manic depressive patient, particularly the manic phase of the disease, is much more amenable to treatment in the early stages than is the case of dementia praecox. Frequently the entire attack may be aborted before it reaches the state of extreme elation or profound depression. As soon as the individual begins to show any increase in psychomotor activity, he should be placed under some regime which will provide an outlet for his excess energy. Care must be taken, however, to insure that his increase in activity does not lead to exhaustion. Here it might be well to add a word of caution against the ever-increasing use of sedatives, particularly the derivatives of barbituric acid. While it is true that these drugs have a valuable and useful place in the practice of medicine, this use is all too frequently abused. Despite all claims to the contrary, these sedatives are both habit-forming and are injurious to both mental and physical health when used in excessive amounts, or over extended periods. Patients have been brought into the hospital showing the cyanosis of cardiac disease, the mental confusion of cerebral arteriosclerosis, and the speech and gait changes of general paresis, all due to the excessive use of sedative drugs. When the patient cannot be made to secure sufficient rest, a warm bath and a glass of milk, or a light meal before retiring will enable him to sleep. The depressed phase of this disease is somewhat more difficult to treat. It must be borne in mind constantly that every mentally depressed person is potentially suicidal, and must be most carefully observed for this reason. The patient should be stimulated to make contacts with outside interests, as in the case of dementia praecox. Frequently, a short vacation amid new and pleasant surroundings, when taken at the proper time, will effect a great change in the patient's general outlook on life.

The next mental disease for our consideration is syphilis of the central nervous system. It is needless to state that the earlier the treatment in this disease, the more hopeful the prognosis and the less need for hospitalization. The time to treat paresis is before it begins, rather than after actual destructive changes have taken place in the central nervous system. If each physician will make it his practice as far as possible to have a Wassermann test made in the examination of every new patient, the early cases of syphilis may be detected and adequate treatment can be instituted in time to check the progress of the disease before the tertiary stage has been reached. Many persons are admitted to mental hospitals every year with advanced paresis, who have never known that they had the primary or secondary stages of syphilis. Of all the methods of treatment, it is generally conceded that thorough intravenous medication with arsenicals, coupled with the oral administration of mercury and iodides over a period, not of months, but of years, is the most effective means of reducing the incidence of general paresis to a minimum.

Little time will be devoted here to the consideration of the inflammatory and neoplastic diseases, such as encephalitis and brain tumors, since these are relatively of a rare nature and are mental conditions resulting from physical diseases that are better cared for by general medicine and surgery at the time of their onset.

One of the diseases widely prevalent throughout the South at the present time, and one which is frequently encountered in this section of our own State, is pellagra. It has long been a controversy whether pellagra is a cause or result of mental disease. In either instance it is recognized that, when the physical aspects of the disease are cleared up, the mental symptoms are almost certainly to be ameliorated. Pellagra is a desease due to a dietary deficiency and, if allowed to progress, will not only result in changes occuring in the gastro-intestinal tract, but will also lead to a central neuritis. The only method of treatment is a thorough correction of the faulty diet. In this respect, there is one article of food which stands out paramount in both prophylaxis and therapy, fresh beef. This should be included in the menu at least two or three times each week, and in the more marked cases daily,

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and should be prepared as rare as the patient will eat it. Milk, eggs and fresh vegetables, especially tomatoes, are other items of food which are essential in both the prevention and treatment of pellagra. In cases, and there are a great many, where the patient's appetite is so poor that it is impossible to get him to take sufficient and proper food, the use of intra-muscular injections of liver extract is beneficial in both stimulating the appetite and in combating the disease itself. If the disease has so progressed as to confine the patient to bed, the family must be thoroughly informed as to how to care for the patient to prevent the appearance of bedsores and to prevent the irritation and infection of the skin lesions. These lesions are greatly aggravated by exposure to direct sunlight and the patient must be warned against this.

While not strictly within the scope of mental disease, the condition of mental deficiency is daily growing into a problem of greater and greater moment. We are faced with the tasks presented us by the parent and teacher of working out a program of adjustment for the child who is too poorly endowed to be able to solve for himself the problems which confront him in every-day life. In the lower degrees of deficiency, such as idiot and the lower grade imbecile, almost nothing can be done other than to give to the individual the same care and protection that is given to an infant. It is in those instances where the level of intelligence is found to run from the moron classification to that of a low normal, that we find an opportunity to be of service. It is a grave mistake to try to give these children a public education in the usual manner far beyond their ability to learn. To attempt this, the defective child gradually falls behind in his studies until he finds himself situated in a class-room with other children much younger and smaller than he is. In such instances children are extremely unkind in ferreting out the weaknesses of their unfortunate playmates and making them the unhappy target of their pranks and childish fun. While this is done without viciousness, or malice, it makes the defective child feel more keenly his own inadequacy. Instead of trying to educate these children in the same manner and class-room as those with a normal intellect, many may be trained along manual and industrial lines, so that they may become useful citizens in the future. It is necessary to make an individual study of the child in order to find what is best suited for him and to approach this in a methodical and pains-taking manner. The defective is largely a creature of habit and learns by the continual repetition of the tasks set before him, and it is almost impossible for him to vary the procedure in performing his duties under somewhat different circumstances from those under which he has become accustomed. This is clearly brought out by the incident of the boy who was placed on a farm after having been trained in one of the schools for defective children. Some time later, the school sought information as to his progress, and was told that he was a willing and industrious worker, and seemed to be getting along quite well. His employer said, however, that he insisted on going to bed and getting up at the same time each day, no matter what the season or weather might be, or regardless of the nature of the work at hand. He also stopped work for meals at the same time, in spite of the fact that they were not always ready. These habits had been so deeply rooted at the school that he had been unable to break away from them under a new and different environment. Thus it is shown the importance of early training of mental defectives to prevent them from growing into adults who will become a burden to themselves, to their families, and to the community.

To summarize, I have attempted to show how the general practitioner may render two great services: first, to the individual, by perhaps saving him from hospitalization, or, at least, to give him hope of a more normal adjustment following a mental illness; and, secondly, to the public at large, by relieving the hospitals, already too crowded for efficient service, of many patients, enabling them to better care for those who are truly in need of hospitalization.

DRUG ERUPTIONS.*

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HISTORICAL

Eruptions produced by drugs were noted and written about before the beginning of the 18th century. Rammazzini, in 1770, published his observations on mercury poisoning among workers with this element. He was, therefore, the first to write a treatise on occupational hazards. Rammazzini described mucosal lesions resulting from mercury, while Bell, in 1796, drew attention to cutaneous lesions caused by mercury. Bell was the first to draw attention to the differences between mercurial eruptions and lesions caused by syphilis. The modern concepts based on clinical-morphologic aspects date back to the publication of Prince A. Morrow in 1887. Today the dermatologist is interested also in the immunologic, allergic and biologic features of drug eruptions. J. Jadassohn did much of the pioneer work in this field. The contributions of Fordyce, MacKee, Wise, Sulzberger, Abramowitz and Parkhurst are well known in this country. The many excellent papers which have appeared on this subject are too numerous to mention.

DEFINITION

The term drug eruption includes all mucosal or cutaneous manifestations caused by a drug regardless of whether the drug is taken by mouth, by injection, by inhalation or by external contact, or by a combination of these. If a substance causes a reaction as a result of its pharmacologic properties, it is not a drug eruption. An example is the erythema produced by amyl nitrite. All patients have this reaction. The term dermatitis venenata is restricted to the production of an eruption as a result of coming in contact with a substance to which the subject is sensitive. Primary irritants such as nitric acid are excluded. Dermatitis medicamentosa implies that the eruption is caused by the injection, or inhalation, or ingestion of a drug to which the patient is sensitive. Rarely absorption takes place through the skin and the same symptoms as those caused by ingestion are elicited. An example of dermatitis venenata is the development of an eczematous eruption caused by contact with poison ivy. The acne-like pustules which develop in a sensitized individual following the ingestion of bromides serve as an example of dermatitis medicamentosa. Almost any drug, with the possible exception of the salines, is capable of producing an eruption in a susceptible individual.

The Patch Test: In obscure eczematous conditions, the patch test is used as an aid in ascertaining the causative factor. Hypersensitiveness can sometimes be demonstrated by bringing in contact with the skin surface the offending substance. A small piece of gauze is soaked with the test substance. This is covered over with an impermeable larger piece of material (oiled silk, cellophane, wax paper) and this is held in place with a larger piece of adhesive plaster. The concentrations employed must be below the borderline concentrations causing irritation to normal skins. Insoluble substances are moistened with water and affixed to the skin. The tests are removed in twenty-four or forty-eight hours and the sites observed every forty-eight hours for evidence of delayed reaction. Patches are usually applied on the trunk or extremities. The reactions vary from simple erythema to necrosis including all the intervening reactions. Proper interpretation of the reactions to patch tests requires experience and judgment to avoid pitfalls. The use of the patch test is of value in dermatitis venenata, in plant dermatitis and the acute occupational dermatoses. Patch tests are practically useless in the determination of dermatitis medicamentosa. It may be used prophylactically as well as for diagnostic purposes. It can be employed to weed out people who are sensitive to substances used in a particular industry. If two or more substances can be used with equal advantage in a manufacturing process, the eczematogenous substance may be eliminated.

GENERAL CHARACTERISTICS

There are certain general characteristics which drug eruptions have in common. These are of diagnostic importance and I shall refer to them very briefly.

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Polymorphism: Dermatitis medicamentosa is a polymorphous eruption. The shape, size and distribution of the lesions vary markedly. Different morphology may be manifested by the same drug. The lesions may by erythematous, papular, pustular, vesicular, gangrenous, purpuric, urticarial, pigmented, etc., or any combination of these. In addition, their arrangement and sites of attack follow no definite pattern. With very few exceptions, there is nothing diagnostically significant about these eruptions.

Time Factor: When an eruption is caused by the administration of a drug, it usually manifests itself within fifteen minutes to twenty-four hours.

Location: If the eruption is due to the local administration of a drug, it occurs at the site of application. If the drug is ingested or injected, the eruption may appear any place.

Duration: The eruption persists as long as the offending agent is at play. The cutaneous manifestations usually disappear when the drug is withdrawn. This is not true, however, of bromide eruptions occurring on the legs.

Course: The eruption recurs when the drug is taken again.

Symptoms: The subjective and objective symptoms vary with the drug and the degree of sensitivity of the patient. There is usually pruritus and burning. Nausea, vomiting, increase in temperature and occasionally death have followed the administration of drugs in "normal" doses.

Heredity: Drug eruptions are not inherited. It has been noted, however, that new born babies have had cutaneous manifestations caused by the ingestions of drugs by the mother.

Pathology: The pathology is that of the urticarial, erythematous and eczematous, group of dermatoses, but it varies according to the drug ingested or injected and the symptoms produced. Iodides sometimes affect the reticulo-endothelial system.

Diagnosis: The final proof that an eruption is caused by a drug is based upon the reproduction of the disease by the administration of the suspected drug after the complete subsidence of the original cutaneous and/or mucosal lesions.

Treatment: The drug is eliminated and the eruption disappears. Locally soothing applications are indicated.

At this point it might be valuable to consider the types of eruptions produced by different drugs included in this summary. The drugs will be considered in alphabetic order.

DRUG	TYPE OF CUTANEOUS REACTION
Acetanilide	Erythematous. Cyanosis of lip in cardiacs.
Antipyrine	Morbilliform, scarlatiniform, urticarial, or bullous. Maculo-pigmented, like phenolphthalein.
Arsenic (including the arsphenamines)	Herpetic, pustular, urticarial, keratotic, pigmentary, ulcerative. Death may result from exfoliative dermatitis or edema of the glottis.
Bismuth	Pigmentation of gums, stomatitis, erythroderma, scarlatinoid erythema, urticaria and pruritus.
Bromides	Acneform, furuncular, bullous erythematous, pustular and pustulosquamous. May be local or generalized. Nodose and tuberous lesions.
Chloral Hydrate	Papular, lichenoid, urticarial, purpuric, scarlatiniform and erythematous. Cyanosis of extremities and bullous rarely.
Chloroform	Erythematous, purpuric.
Cinchophen	Angioneurotic edema, erysipelatous swelling of face, scarlatiniform, urticarial and eczematous, jaundice.
Copaiba	Scarlatiniform followed by desquamation; papular and uticarial.
Di-nitrophenol.	Urticaria, edema, and purpura and jaundice.
Digitalis	Scarlatiniform, erythematous and papular.
Ephedrine	Scarlatiniform, erythematous, eczematous, purpuric.
Insulin	Urticaria. Subcutaneous tumefaction at site of injection (lipodystrophy).
Iodides	Acneform, pustular, carbuncular, vegetating, bullous, nodular, purpuric, papular, urticarial, and erythematous. May terminate fatally.
Luminal	Scarlatiniform.
Mercury	Discoloration of gums, stomatitis, folliculitis, scarlatiniform, eczematoid and dermatitis exfoliativa.
Morphine	Erythematous, maculopapular and urticarial, pruritus.
Nirvanol	Scarlatiniform, morbilliform, urticarial, and erythema multiforme like eruptions.
Phenolphthalein	Erythematous, urticarial, bullous, and erythema multiforme like eruption, fixed, circumscribed and polychromatic pigmented lesions.
Procaine	Papulovesicular; verrucous condition of ends of fingers occurring in dentists.
Quinine	Erythematous, scarlatiniform, purpuric, urticarial, vesicular, bullous and ulcerative.
Salicylates	Erythematous, scarlatiniform, desquamative.

Time will not permit a detailed discussion of many of these drugs and the eruptions they produce. Only the most important ones will be discussed.

Bromides, phenolphthalein and arsenic are important constituents of proprietary preparations and are probably more commonly prescribed by physicians than any other group.

A few cases of dermatitis medicamentosa have been reported which were caused by topical remedies, that is, absorption and distribution of a drug not following ingestion or injection, but resulting from local application. Sulzberger and Wise have reported such cases.

Arsenic: This element is probably one of the oldest used in medicine. It has been employed since the beginning of the Christian era. The opportunities for the absorption of arsenic are constantly increasing. Arsenic may enter the system through inhalation, medication, contact in industry or occupation, eating fruit and vegetables sprayed with arsenical preparations, eating foods wrapped in colored papers, contact with insecticides containing arsenic, contact with dyed fabrics and wall paper, from drinking water, etc.

The symptoms produced vary markedly. The commonest forms of the eruption are erythematous and pigmentary. Less often, vesicular, bullous, pustular, purpuric, and ulcerative lesions appear. There are authenticated cases of zoster caused by arsenic. Keratoses, especially of the palms and soles, are not infrequently seen. The importance of these is that a fair percentage become carcinomatous. Urticarial, lichenoid, scarlatiniform and morbilliform eruptions also occur. Pruritus with or without icterus may precede the onset of dermatitis exfoliativa. Edema of the glottis and edema of the angioneurotic type may accompany dermatitis exfoliativa. Gastro-intestinal as well as blood (agranulocytosis) and visceral changes are well known symptoms of arsenical intoxication.

Treatment.—The drug must be discontinued. Sodium thiosulphate injected intravenously is said to unlock the arsenic from the tissues and its liberation hastened. Some doubt the value of this drug in speeding the elimination of arsenic. A freshly prepared solution is more efficacious. The dose is usually 1 gram diluted in 10 cc. of freshly distilled and sterilized water. The injections may be given daily at first and later two or three times a week. A total of fifteen or twenty injections generally suffices.

Bismuth: This drug is used extensively in the treatment of syphilis. Eruptions are uncommon but they do occur. It is important to recognize these in order to differentiate them from syphilitic lesions. Perhaps the most frequent symptom is pigmentation of the gums resembling the well known lead line of lead poisoning. This may or may not be accompanied by ulcerative stomatitis. An erythematous papulosquamous or papular eruption with configuration and distribution resembling pityriasis rosea or neurodermatitis may be caused by bismuth. Pruritus may be quite severe in some cases.

Mercury: This drug is largely replaced by bismuth in the treatment of syphilis. Stomatitis and salivation are the most common accompaniments of mercurial poisoning. Rarely it produces an erythematous and scarlatiniform eruption. Folliculitis, eczematous and urticarial lesions, pigmentation and even exfoliative dermatitis have been reported.

Iodides: Iodine and its compounds have been administered extensively both for therapeutic and diagnostic purposes. The lesions which result from their use are usually of a mild nature. Sometimes the lesions and the symptoms may be so severe as to cause death. Several cases of fatal iododerma have been reported.

The commonest type of eruption is acneform. The pustules involve the co-called acne areas. Vesicular and bullous lesions also occur. A case reported by Fordyce and MacKee manifested hemorrhagic vesicles and bullae. Furuncular lesions, either single or multiple, may cause severe toxic symptoms and may be mistaken for blastomycosis. Scarlatiniform and purpuric lesions rarely occur. Infiltrated plaques and nodules resembling erythema nodosum sometimes occur. The lesions caused by iodides are predominantly pustular.

There is a group of drugs which are used for their effect upon the central nervous system which frequently produces cutaneous manifestations. These are bromides, the barbiturates, (luminal and veronal), pyramidon, salicylates, choral hydrate and nirvanol. The symptoms produced by these drugs vary in type, distribution and severity.

Bromides: Many of the lesions caused by the iodides are duplicated by the bromides. This is particularly true of the pustular, furuncular and the carbuncular lesions, the vegetating, papillomatous, fungating, granulomatous (bromide gumma) and bullous lesions. The granulomatous lesions

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are usually single and appear on the anterior surface of the leg. The lesion is raised, irregular and painful. It is soft and may be covered with a seropurulent exudate and the margins may be crusted, raised and dull red in color. The lesion may involve any part of the body and may vary in number from one to a hundred or more. A nodular bromoderma occurring on the face and body of nursing infants whose mothers are taking bromides is occasionally seen.

Treatment.—Bromoderma disappears exceedingly slowly when the drug is discontinued. This is in marked contrast to other drug eruptions. Normal saline solution administered intravenously or sodium chloride by mouth causes the lesions to disappear more rapidly.

Luminal and veronal produce similar cutaneous lesions in susceptible individuals. As a rule, they are generalized and are either scarlatiniform or morbilliform. Dermatitis medicamentosa due to luminal and veronal may be accompanied by rhinitis and pharyngitis and may even cause erosions of the oral mucosa. Urticaria and angioneurotic edema are occasionally seen. Large maculo-papules and vesicles occur rarely.

Pyramidon: The lesions produced by the ingestion of pyramidon are mostly urticarial with swelling of the lower lip and eye-lids. They may be erythematous and generalized. On the lower extremities petechiae and purpuric lesions may occur. Pruritus is severe at times.

Salicylates: The salicylates rarely produce cutaneous lesions. When they do, they vary markedly in appearance. The lesions may resemble measles or scarlet fever or may present a generalized erythematous macular or papular eruption. Sometimes urticarial lesions with angioneurotic edema and conjunctivitis are seen. Vesicular, bullous or pemphigoid, erysipeloid or ecchymotic lesions may occur. Dermatitis exfoliativa is exceedingly rare from acetylsalicylic acid or sodium salicylate.

Choral Hydrate: Eruptions produced by the internal administration of choral occur infrequently. The lesions produced by this drug belong to the erythema group and may be of morbilliform, scarlatiniform, urticarial, vesicular and petechial types. Abramowitz and Noun reported a very interesting case of a druggist who became sensitized to the drug from repeated handling and experienced repeated attacks of an eczematous dermatitis of the hands and face whenever he touched chloral hydrate in compounding a prescription containing this drug.

Nirvanol: This is a comparatively new drug and is used for the treatment of chorea. Many or most of the patients receiving this drug develop a generalized eruption consisting of macules or erythematopapules, scarlatiniform or morbilliform in appearance. There is also hyperpyrexia and eosinophilia. "Nirvanol sickness" comes on six to twelve days after the first administration of the drug. When the drug is discontinued, the lesions disappear.

Insulin: Lipodystrophy and subcutaneous tumefactions at the site of injection have been reported following the treatment of diabetes with insulin. Rowe and Garrison reviewed the literature and added their own experience in an article published in 1932. Urticaria and sometimes the picture of serum sickness is seen.

Gold: The use of salts of gold (gold sodium thiosulphate), sanocrysin (gold sodium thiosulphate), and krysolgan (cantharidylethylindiaminogold cyanid), for the treatment of cutaneous, pulmonary and other visceral tuberculosis, for rheumatism, etc., is not entirely safe. Various symtoms may be produced in the idiosyncratic person varying all the way from simple pruritus to death. A detailed discussion of all the reactions would require too much space. Wright has summarized the reaction following gold therapy in an excellent article published in March, 1936. He states that 25 per cent of all the patients he treated over a period of ten years showed some reaction. The reactions which he noted following the use of gold were: dermatitis, fever, purpura, jaundice, albuminuria, metrorrhagia, recurrent pruritus, fatality, exacerbation of eczema and cirrhosis (doubtful etiology). To these must be added symptoms noted by others and reported elsewhere. These are aplastic anemia, agranulocytosis, hepatitis, gastro-intestinal disturbances, vomiting, diarrhea, abdominal cramps, gingivitis, stomatitis and even ulceration of the mouth, pigmentation and permanent blindness. The most common cutaneous reactions are pruritis and a scarlatiniform eruption. The erythroderma is sometimes accompanied by exfoliation. There are isolated cases of hyperkeratosis of the soles, pustular dermatitis of the hands and

feet, labial edema, zoster, erythema nodosum and lichen planus-like eruption.

The multiplicity of reactions resulting from gold tends to emphasize the toxicity of this drug. It must, therefore, be used only by those who have had experience with it or under their immediate direction.

Treatment is avoidance of further gold therapy as soon as any signs of its intolerance develops and the intravenous administration of sodium thiosulphate.

Phenolphthalein: Credit is due to Abramowitz for being the first one to recognize eruptions caused by this drug. He also called attention to the many sources from which an individual unwittingly ingests this drug. It may be in douche powders, in mouth washes, in the coloring used on cake icings, in "health biscuits," etc. It is also an ingredient of many cathartic pills. It is found in agarol, feenament, ex-lax, partola, phenolax, alophen, zam zam, Rexall orderlies, laxophen, phenalin, prunoids, etc.

In idiosyncratic individuals, it produces an erythema multiforme like eruption which is fixed and recurs in the same locations whenever the drug is ingested. It produces pigmentary areas which may last for many months after withdrawal of the drug.

The eruption may affect any part of the body. Not infrequently one sees a solitary lesion involving the glans penis or mucous membrane of the lip or mouth. The lesions on the body vary in size from a split pea to that of a palm. They are round or oval, purplish to dark red plaques which are edematous, in rare instances, bullae form. Other types of eruptions may be produced by phenolphthalein. Urticarial and herpetic eruptions have already been reported.

Ephedrine: The first to record an eruption caused by contact with ephedrine was Scheer. Eczematous, erythematous and scarlatiniform lesions are noted.

Di-nitrophenol is so toxic that its use in reducing superfluous weight has practically ceased. Noun reported a case in which purpuric lesions developed along with an urticarial eruption. Other symptoms reported were edema, jaundice, maculopapular eruptions, and a granulocytic angina. Death has occurred in some cases.

Everyone is familiar with eruptions caused by coming in contact with certain chemicals. The most common of these are poison ivy, primrose, oak, sulphur, mercury, chrysarobin and even lanolin. Contact with oils or tar may cause an acne-like eruption. Dermatitis venenata cannot be discussed in detail at this time.

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BIBLIOGRAPHY

1. Abramowitz, E. W.: Erythema Multiforme Associated with Cutaneous Pigmentation (Melanin). Clinical and Pathological Report of Five Cases. *J. Cutan. Dis.*, 36:11-28, 1928.
2. Abramowitz, E. W., and Noun, M. H.: Eczematous Dermatitis Due to Exposure to Chloral. *Jour. Allergy*, 4:338, May, 1933.
3. Morrow, P. A.: Drug Eruptions. Edited for the New Sydenham Society, by T. Calcott Fox, London, 1893.
4. Netherton, E. W.: Drug Eruptions. *Cleveland Clinic Quarterly*, 2:4, July, 1935.
5. Rowe and Garrison: Lipodystrophy. *J. A. M. A.*, 99:16, July 2, 1932.
6. Sulzberger, M. B., and Wise, F.: Drug Eruptions. *Arch. Dermat. and Syph.*, 28:461, October, 1933.
7. Wright, Carroll S.: Ten Years Experience in the Treatment of Lupus Erythematosus with Gold Compounds. *Arch. Dermat. and Syph.*, 33:413, March, 1936.
8. Wise, F., and Abramowitz, E. W.: Phenolphthalein Eruptions. *Arch. Dermat. and Syph.*, 5:297, March, 1922.
9. Wise, F., and Parkhurst, H. J.: Drug Eruptions From the Clinical Aspect. *Arch. Dermat. and Syph.*, 6:542, November, 1922.
10. Wise, F., and Sulzberger, M.: Eruptions from Drugs and from External Medicaments. *Penn. Med. J.*, September, 1934.
11. Scheer, M.: A Case of Dermatitis Venenata Due to Ephedrine. *Arch. Dermat. and Syph.*, 20:641, November, 1929.
12. Abramowitz, E. W., and Noun, M. H.: Ephedrine Dermatoses. *Brit. J. Dermat.*, 45:225, June, 1933.
13. Noun, M. H.: Urticaria, Edema and Purpura Following Small Doses of Di-nitrophenol. *Arch. Dermat. and Syph.*, 32:228, 1935.

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CYST OF THE NECK—REPORT OF NINE CASES AND PAROTID GLAND TUMOR—REPORT OF TWO CASES.*

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This paper is based on the clinical findings in seven cases of thyroglossal cyst, two cases of branchial cyst, and two cases of parotid gland tumor.

The embryology and theories regarding the evolution of branchial cysts and fistulae will not be discussed, as those aspects of the subject can be found in text-books.

The clinical picture of branchial fistulae and cysts, and thyroglossal cysts is often unrecognized. These conditions are frequently mistaken for tuberculous adenitis or suppurating lymph glands and are repeatedly incised and drained. While these conditions are congenital, the majority are not properly recognized and treated until adult life. Wangensteen[1] recommends the use of X-ray examination in making differential diagnosis of branchial cyst from tuberculous adenitis, observing that an opaque medium gives a sharply circumscribed outline in branchial cyst and an irregular outline in a tuberculous lymph node.

The finding of cholesterol crystals and epithelial cells in the aspirated fluid makes the diagnosis reasonably certain.

Classification.—According to E. Wyllys Andrews[2], there are five types of branchial cysts or fistulae: (1) Complete branchial fistula with internal and external opening. (2) Incomplete external fistula, no internal opening. (3) Incomplete internal fistula, no external opening. (4) Branchial cyst, no internal or external opening. (5) Branchial dermoid.

Treatment.—With the hope of destroying the fistulous tract, various chemicals have been injected. These are mentioned only to be condemned. Hofter[3] reports seven cases treated successfully with diathermy. It is the consensus of opinion among surgeons today that complete removal of the cyst and fistula is the most effective method of treatment.

The technique for this operation as described by Sistrunk[4] gives excellent results when the whole epithelial tract from the cyst to the foramen cecum in the tongue is completely removed. The principle of the operation is to dissect out not only the tract but an amount of tissue for about an eighth of an inch on all sides of the tract, coring it out between the hyoid bone and the foramen cecum.

Case Reports.

Case 1. A young man, age nineteen, came to the hospital September 12, 1932, complaining of a swelling in the floor of his mouth and beneath his chin of six weeks' duration. Physical examination revealed a hard non-fluctuant mass above the larynx and the floor of the mouth. A probe could be passed down a well-defined duct. X-ray plate with probe in the tract showed the tip at the anterior border of the hyoid bone and diagnosis of thyroglossal cyst was made. Operation was advised and performed according to the Sistrunk technique under local anesthesia November 25, 1932. The cyst with a section of hyoid bone was removed. The recovery was uneventful and permanent.

Case 2. Male patient, age forty-seven, consulted me January 6, 1926. Chief complaint, choking sensations at times during the past year, worse when lying down.

Past history: The symptoms began one year ago. During this time the patient has had no difficulty in swallowing and has followed his occupation of a trainman without any inconvenience.

Examination: Laryngopharynx reveals a smooth, rounded pedunculated tumor situated between the base of the tongue and the epiglottis. Physical examination otherwise negative.

Operation: Tumor was seized with a hook and the pedicle was excised with a wire snare. No anesthesia. Patient has since remained well.

Case 3 Patient, age fourteen, came to the hospital August 2, 1933, complaining of a "swelling under right jaw for past two months." Parents attributed this swelling to an attack of tonsillitis. Patient also complained of a pulling sensation of right lower eyelid and a blowing sensation in the right eye. The pupil of the right eye dilated when

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pressure was applied over the swollen area. Physical examination otherwise negative. A needle was passed into the mass and sterile pus containing epithelial cells, leucocytes and erythrocytes and many cholesterin crystals was found. A diagnosis of branchial cyst was made and operation advised and performed September 9, 1933. The cyst measured two and one-quarter inches in diameter. The cyst filled the superior carotid triangle of the neck.

Case 4. A young man, age nineteen, came to the hospital April 17, 1934, complaining of swelling under his chin and pain on swallowing. These symptoms were of three and one-half years' duration. Examination: Patient had a drainage sinus at level of thyro-cartilage. A probe could be readily passed to the hyoid bone. The discharge was of a thick, viscous nature and contained cholesterin crystals and epithelial cells. The patient had had three previous operations without relief. Diagnosis of thyroglossal cyst was made and an operation was advised and performed on April 18, 1934. The cyst with a section of hyoid bone was removed. Recovery was uneventful and the patient has since remained well.

Case 5. A young girl, age eighteen, came to the hospital on August 2, 1935, complaining of a painful swelling in the upper left side of her neck. The swelling was of three years' duration but the pain was a recent development. Examination revealed a soft, fluctuant mass about one and one-half inches long and one-half inch wide. Diagnosis of a branchial cyst was made and operation was advised and performed under local anesthesia. The cyst was removed without rupture of capsule. Pathologist reported that the growth was of branchio-genetic origin and harmless.

Case 6. A child. age four years, female, was brought to the hospital June 14, 1930, complaining of a growth at the base of her tongue. The growth was discovered in routine examination and the patient did not have any symptoms. Physical examination revealed a well child with the exception of a swelling at the base of the tongue. Diagnosis of a thyroglossal cyst was made and an operation was advised and performed under general anesthesia. The growth was incised and a thick gelatinous substance was removed. The sac was carefully curetted and cauterized with 50 per cent silver nitrate. There has been no recurrence.

Case 7. Patient, age two and a half years, female, was brought to the hospital on June 4, 1935, complaining of a growth at the base of the tongue. Parents stated that this growth had been present since birth. Examination revealed a healthy child

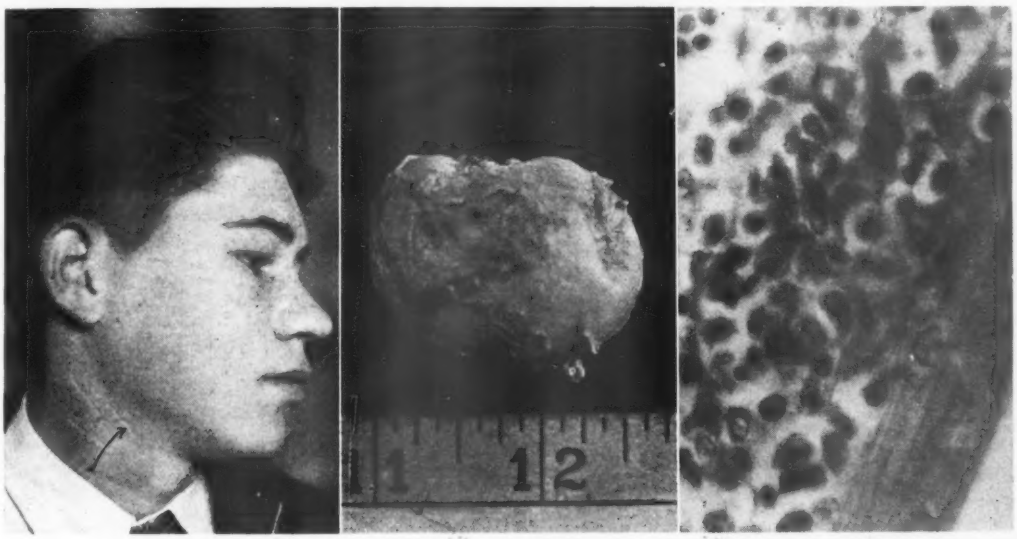

Fig. 1.—A.—F. S., age fourteen. Arrow points to scar after removal of branchial cyst.

B.—F. S., age fourteen. Branchial cyst.

C.—F. S., age fourteen. Photomicrograph of branchial cyst showing squamous cell epithelial lining, dense fibrous tissue infiltrated with small round cells.

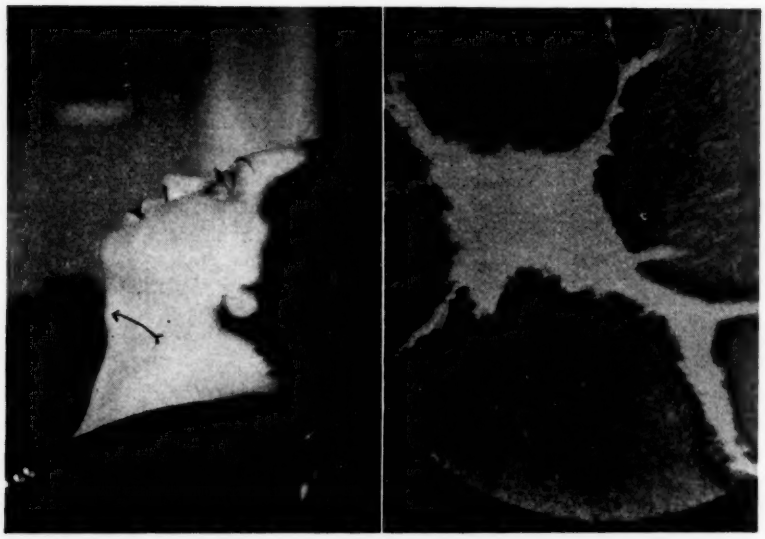

Fig. 2.—A.—T. S. K., age twenty-seven. Arrow points to swelling caused by thyro-glossal abscess.

B.—T. S. K., age twenty-seven. Photomicrograph showing thyro-glossal cyst, central lumen lined with several layers of epithelial surrounded by connective tissue.

Fig. 3.—A.—C. S., age sixteen. Thyro-glossal cyst. Arrow points to scar from previous operations.

B.—C. S., age sixteen. Photomicrograph showing thyro-glossal duct lumen lined with multi-layered epithelial, normal thyroid tissue above.

other than the growth on the tongue. The diagnosis of a thyroglossal cyst was made, and an operation advised and performed on June 31, 1935. The growth was incised, the sac carefully curetted and cauterized with silver nitrate. Two c.c. of thick viscid material was aspirated. The secretions contained cholesterin crystals and epithelial cells. There has been no recurrence.

Case 8. Patient, age twenty-seven, female, came into the hospital April 1, 1936, complaining of a swelling on the front of the neck. The swelling had occurred three times during the past month. Exami-

nation revealed a hard lump on the mid-line of the neck. A needle was passed into the mass and sterile pus containing epithelial cells and erythrocytes was found. The diagnosis of a thryroglossal cyst was made, and an operation advised and performed on April 4, 1936. The patient had an uneventful recovery.

Case 9. Patient, age sixteen years, male, came into the hospital May 10, 1936, complaining of a discharging sinus in the mid-line of the neck. A diagnosis of thyroglossal cyst was made, and an operation was advised and performed on May 12. 1936. The patient had had two previous operations without relief. There has been no recurrence to date.

Diagnosis.—The diagnosis of parotid tumors is not difficult, but to make a positive clinical diagnosis of a benign or malignant growth is impossible.

Treatment.—The treatment is complete surgical removal. If the growth is encapsulated simple removal will suffice, but if the growth is extra capsular more extensive removal of the entire gland including the facial nerve may be necessary.

Case Reports.

D. S. P., age thirty-five years, came to the hospital August 16, 1935, complaining of a growth in front of the left ear of six years' duration. Examination revealed a healthy man other than a growth in front of his left ear which was movable and apparently encapsulated. Diagnosis of a parotid gland tumor was made and an operation was advised and performed under local anesthesia on August 16, 1935. The growth was removed with the capsule intact. The wound was sutured with interrupted sutures of dermoil and a rubber drain was inserted.

SUMMARY AND DATA IN NINE CASES OF THYROGLOSSAL BRANCHIAL CYSTS

Identification Age	*Race Sex*	*Cyst (side of neck and location)*	*Duration*	*Remarks*	*Pathology*
Case 1 D. R. 19 years	W. M.	Mid-line	6 weeks	Op. 9/12/32 Fistula 1 cm. long.	Thyroglossal cyst, central lumen lined with multi-layered transitional epithelium surrounded by area of dense fibrous tissue.
Case 2 R. T. L. 47 years	W. M.	Foramen cecum cyst size of an egg.	1 year	Op. 1/6/26 Well ten years after operation.	Cyst wall lined with several rows of epithelial cells.
Case 3 F. S. 14 years	W. M.	Upper third, right.	2 months	Op. 8/2/33 Followed an attack of tonsillitis.	Branchiogenetic cyst-section from wall—squamous cell epithelial lining, dense fibrous tissue infiltrated with small round cells.
Case 4 C. B. 19 years	W. M.	Mid-line	3½ years	Op. 4/17/34 Had three previous operations—no results.	Thyroglossal duct, epithelial lined lumen with infolding on base of dense fibrous tissue.
Case 5 A. C. W. 18 years	W. F.	Upper third, left.	3 years	Op. 8/2/35 Pain in neck developed during past three months.	Several types of epithelial cells, lymphoid tissue, lymph channels. Growth of branchiogenetic origin and harmless.
Case 6 M. G. 4 years	W. F.	Foramen cecum.	3 months	Op. 6/2/30 No symptoms discovered in routine examition.	Thick gelatinous substance.
Case 7 R. S. 4 years	W. F.	Foramen cecum.	Present since birth.	Op. 6/4/35 Marble size.	Two c.c. viscid material aspirated.
Case 8 T. S. K. 27 years	W. F.	Mid-line	1 month	Op. 4/8/36 The patient had not been operated on previously.	Thyroglossal cyst, central lumen lined with several layers of epithelial surrounded by connective tissue.
Case 9 C. S. 16 years	W. M.	Mid-line	5 years	Op. 5/12/36 The patient had two unsuccessful previous operations.	Thyroglossal duct, lumen lined with multi-layered epithelial, normal thyroid tissue above.

PAROTID GLAND TUMORS

Parotid gland tumors may occur at any age. Cases have been reported nine years of age at the onset of the growth and others seventy-two years of age at the time of onset. Benign tumors usually begin before the age of forty and malignant tumors usually begin after forty.

TABULATION PAROTID GLAND TUMORS

Case	*Age*	*Duration and Symptoms*	*Right or Left*	*Size and Consistency*	*Treatment Surgery X-ray Radium*	*Pathology*	*Result*
1. D. S. P.	34 years M.	6 years	left	1½x1¼x1 inches. Lobulated, firm and movable.	Surgical removal 8/10/35	Fairly active adenocarcinoma	No recurrence to date.
2. G. B. C.	62 years M.	35 years	left	1x¾x1½ inches. Firm and immobile.	X-ray and Surgery 10/7/35	Fibro-adenoma with calcareous degeneration. not radio-sensitive.	No recurrence to date. *Since preparing this paper this patient has had recurrence and is being treated with X-ray and radium.

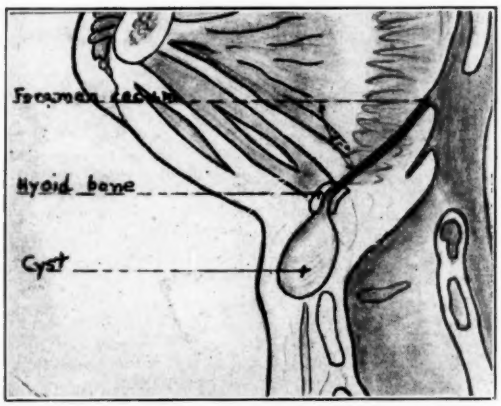

Diagram 1.—Cross section showing the relation of the cysts and fistulate of the thyro-glossal tract (Sistrunk).

Pathologist reported a fairly active adenocarcinoma. There has been no recurrence of the growth to date.

G. B. C., male, age sixty-two years, came to the hospital on October 7, 1935, complaining of a growth in left side of face in front of the ear for past thirty-five years. Diagnosis was made of a parotid gland tumor. The tumor was one and one-half inches long and one inch wide, very firm and immobile. An operation was advised and performed under local anesthesia on October 7, 1935. An incision was made extending from the zygoma downward about one-half inch anterior to the external meatus. An encapsulated tumor approximately the size of a hen egg was found firmly fixed to the temporal bone. The capsule was not ruptured. There was a large amount of surrounding scar tissue almost cartilaginous in consistency. This patient had previously been given deep X-ray therapy. Pathologist reported the growth to be fibro-adenoma with calcareous degeneration and was

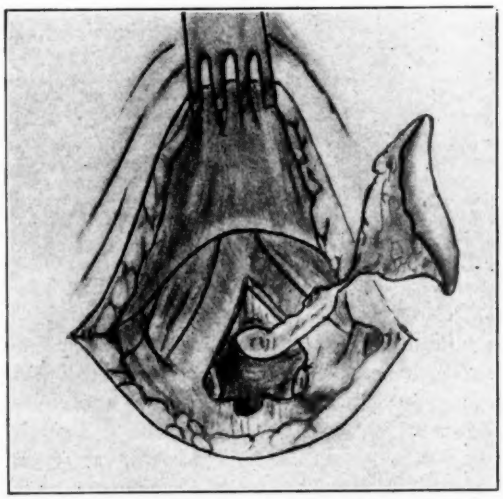

Diagram 2.—The middle segment of the hyoid bone is removed and the thyro-glossal tract is dissected (Sistrunk).

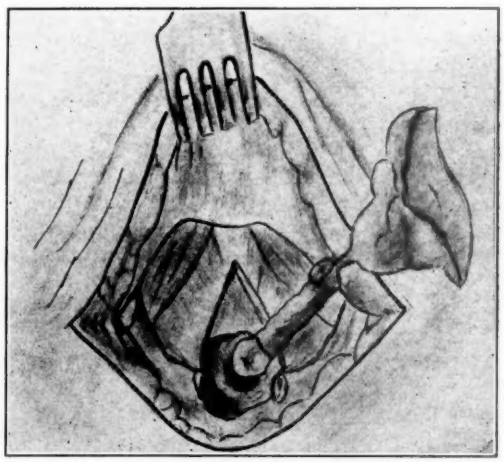

Diagram 3.—The dissection has been completed, and the foramen cecum is exposed (Sistrunk).

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not radio-sensitive. The patient is being carefully observed.

Comment.

Surgical removal of parotid gland tumors is not difficult in early cases but if the capsule is ruptured it is necessary to remove the entire parotid gland, possibly also the facial nerve together with ligation of the external carotid artery.

The use of radium or X-ray should be withheld until a pathological report is obtained either after biopsy or complete operation.

The prognosis should be guarded as both benign and malignant tumors in this area have a strong tendency to recur, and malignant ones metastasize readily to the lungs and other parts of the body.

BIBLIOGRAPHY

1. Quoted by Kleinert, M. D., *Archives of Otolaryngology,* October, 1933, Vol. 18, pp. 510-515.
2. Quoted by Baumgartner, C. J., *Surgery, Gynecology and Obstetrics,* May, 1933, Vol. LVI, pp. 948-955.
3. Quoted by Shelden, W. M., *New England Medical Journal,* October 22, 1931.
4. Sistrunk, W. E., *Annals of Surgery,* February, 1920.

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INTERSTITIAL KERATITIS OF HEREDITARY SYPHILITIC ORIGIN—WITH CASE REPORT.*

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Interstitial keratitis is simply an inflammatory condition of the keratin in the cornea of the eye, which may be due to a number of things, such as traumatic injury, bacterial infection, drug irritation, etc.

The cornea is the clear, transparent, anterior portion of the external coat of the eyeball, which is a continuation of the sclera or outer covering of the eyeball proper.

The cornea is composed of five layers, (a) layer of epithelial cells which is a continuation of the sclerotic coat, (b) Bowman's membrane, (c) proper substance of the membrane, (d) Descemet's membrane, and (e) a layer of endothelium.

Keratitis, as previously stated, may be attributed to a number of causes; however, the purpose of this paper is to discuss that form of keratitis caused by hereditary syphilis.

Syphilis, as we well know, may manifest itself in various ways, other than a generalized infection of the body—by the localized chancre or the secondary skin lesions, which are generally most typical of the desease. Once the organism has gained entrance into body through the blood vessels and lymphatic channels a general syphilitic infection usually follows. Later the organism tends to localize in some definite organ of the body, with predilection for the bones, liver, heart and blood vessels, central nervous system and the eye.

Congenital syphilis is transmitted only through the mother. If the desease originally comes from the father, he infects the mother, and she in turn infects the offspring through the placenta circulation. The duration of the infection in the placenta has an important influence upon the likelihood of transmission. Fournier has shown that the disease is transmitted usually during the first three years after infection. The danger then lessens to an appreciable degree, so that five to ten years after the initial lesion syphilis is, as a rule, no longer transferable by the father. The mother, however, may infect her child even twenty years afterwards.

If the foetus is infected early in the disease of the parent, it usually dies *in utero* and a miscarriage results. After a time, perhaps after two or more such miscarriages, there may be born a full-term child with unmistakable signs of syphilis, who dies during the first year of life. Still later the mother may give birth to an apparently healthy child who displays a positive Wassermann reaction and subsequently shows other evidence of the disease. These children are often frail, anemic, undersized, marasmic, and retarded in development. They are likely to succumb early in life to various intercurrent disease. Occasionally the child with congenital syphilis shows no signs of the disease until

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after ten or twelve years, or even longer, when late manifestations may appear. The tissues of the child born with manifest syphilis harbor the treponema in enormous numbers.

The symptomatology of the congenital syphilis does not differ materially from that of the acquired disease except there is no primary sore and the latent manifestations appear much earlier, sometimes, indeed simultaneously with the usual early symptoms. The children who at birth show outspoken evidence of syphilis, and who usually die within the first few weeks of life, have a true treponema septicemia. This is manifested by the bullous eruptions on the skin, the fissures about the angles of the mouth and nose and the characteristic nasal discharge, to which the name "snuffles" has been given.

The affection when it affects the cornea begins at the margin or center; if it starts in the center, this part will present a grayish infiltration, the superficial layer at first retaining their normal luster; the central patch soon spreads so that the whole cornea becomes implicated. If it commences at the periphery, one or more grayish spots are seen, which soon spread towards the center and involve the cornea, so that the iris can be seen only with difficulty, and usually is reduced to little more than perception of light. The surface of the cornea is now steamy and resembles ground glass.

At this period or even before, deep-seated blood vessels make their appearance and pervade more or less of the cornea, the advent of the blood vessels giving the limbus a red salmon appearance, known as the salmon patches. The progress thus far is accompanied by irritative symptoms and ciliary congestions, and lasts one or two months.

During the period of infiltration and vascularization there will be photophobia, lacrimation, pain and interference with vision. Both eyes are usually involved; frequently the inflammation in the second eye commences after that in the first has existed for some weeks or months.

Some of the most frequent and noticeable signs of hereditary syphilis are characteristic physiognomy, peculiar conformation of the skull, such as square forehead, prominent frontal eminences, depressed bridge of the nose, radiating at angles of mouth, scars in the mouth and pharnyx, enlarged cervical lymphatic glands, nodes on the bones, and more or less impairment of hearing. The permanent teeth are ill developed, angles rounded off, and there is often a crescentic notch in the free margin. A triad of signs was described by Jonathan Hutchinson, as especially characteristic of congenital syphilis, Hutchinson's teeth, interstitial keratitis, and deafness.

Statistics show that interstitial keratitis is much more prevalent than the casual observer would surmise. Still, of London, found in his series of cases of hereditary syphilis that ten per cent showed cerebral affections of one kind or another. Derb has estimated that one in about every 180 eye cases in a large dispensary is a case of interstitial keratitis. Inglesheimer, from a study of 152 eyes with interstitial keratitis, found that only sixty per cent recovered useful vision, and forty per cent were disable partly or completely.

Interstitial keratitis usually makes its appearance between the fifth and tenth year, or it may not make its appearance until the eighteenth to the twenty-fifth year, as, for example, in women after the birth of a child or at some other period of lowered resistance.

In conclusion, I wish to say that the subject of this paper has been dealt with rather superficially; however, it has been my intention to bring out some of the salient features of syphilis and its rare manifestations with which the general practitioner comes in contact sooner or later. It is my candid opinion that the above condition is encountered much more frequently than we would ordinarily think, and especially do I feel this is true in communities where there is a large colored element, as is true of Lancaster County.

During the past three and one-half years of my practice in this county I have taken 525 blood Wassermanns, 100 of which were positive. The majority of these patients took antiluetic treatment with a decided improvement in a large percentage of cases. Among these cases there was found one case of paroxysmal hemoglobinuria, and one of interstitial keratitis—which is being reported.

CASE REPORT

Colored male, age five years, was brought into the office June 6, 1933, complaining of eyes watering and hurting and poor vision. Duration, two months.

Physical examination revealed a rather poorly nourished and developed colored male—weight thirty-seven pounds.

The head was poorly developed in general con-

tour, while the forehead was rather square. Ears were clear, though there was some deafness.

Eyes showed some cloudiness of the cornea, some lacrimation, and a tendency to avoid the light, there being some congestion of the blood vessels.

Nose was rather flat, with nasal discharge and frequent snuffling; otherwise, negative.

Other than for infected and hypertrophied tonsils, throat and mouth were generally negative. Teeth showed some tendency towards pegging.

Heart and lungs were essentially negative; abdomen negative.

The bony tissue of the extremities was rather poorly developed, and the patient complained of some pain in knee and elbow joints.

Urine analysis was negative. Blood Wassermann was reported four plus.

A tentative diagnosis of interstitial keratitis was made at this time, and was later confirmed by a second positive Wassermann.

This child was put on mixed treatment for two weeks, after which he was started on intramuscular bismuth, one injection a week for three months. Following this, a second blood Wassermann was taken—still showing four plus. He was then started on small injections of neoarsphenamine, during which time his vision began to clear. He was given sixteen weekly doses of neoarsphenamine after which a negative Wassermann was obtained. He was given a three months' rest period, after which he was given twelve more bismuth injections. Then a second blood Wassermann was taken, which was negative. Yearly check-ups have been made on this child, and have remained negative to the present time.

A blood Wassermann was taken on the father which was negative; also on the grand-father and mother which were also negative. The mother and father were not living together and a blood Wassermann on the mother was not available at the time, but was secured about one year later. It was found to be four plus.

ON THE PRACTICAL USE OF THE AUDIOMETER.*

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It was the great scientist Lord Kelvin, I believe, who once said something to the effect that no science can make full progress, that is not based on methods of precise measurement. But aside from scientific considerations there is a great practical need for a system of accurate measurement in the case of man's hearing.

The ear specialist needs to make accurate measurement for the following reasons:

1. In order to pass intelligent judgment on the cause and nature of deafness. Types of deafness differ fundamentally from one another, and their differential diagnosis depends in a large measure upon a careful application of the so-called functional hearing tests.

2. A dependable system of measurement is necessary in order to know whether a patient's hearing is getting better or worse under a given method of treatment: this might apply to treatment the physician himself is employing; it might apply to an inquiry as to whether some highly vaunted, quack method of treatment is producing results claimed for it. Accurate measurement will often show that benefit is only in the imagination of the patient.

3. Hearing tests are of value in determining whether or not a deaf patient should use an artificial hearing device, and if so what type. This is a very much needed kind of service that the otologist can render, and yet one which has for the most part been wholly neglected. The poor unfortunate hard of hearing are generally left to the mercy of commercial agents and their sales talk, and sometimes are persuaded to use devices that not only do not help but actually do harm. It is as much the province of the otologist to prescribe proper hearing aids, as of the ophthalmologist to prescribe proper glasses.

4. Accurate measurement of hearing may prove useful in the problems of general medicine.

The hearing sense, probably because it is phylogenetically the most recent, is the most delicate and sensitive of the special senses. It is therefore the

*Read before the Virginia, Maryland and District of Columbia Medical Society, May 27, 1936.

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one which most readily succumbs to systemic and toxic infections. We are familiar with its susceptibility to quinine and other chemical agents, and to luetic infection. Accidental discovery of marked decrease in bone conduction has often led to the diagnosis of syphilis in cases in which there was no other reason to suspect it. A pronounced lowering of the upper tone-frequency limit should always arouse suspicion of a possible focal infection, especially from near sources, as teeth, tonsils and sinuses.

Why has information of this character not been more often sought and utilized? It is simply because statements based on exact and dependable hearing measurements were not forthcoming.

It is a truism that to make measurement of any kind, we must have a definite, unvarying unit of measure. For distance we have the inch, the foot, the yard; for weight, drams, ounces or pounds; for fluids, the gill, the pint, the quart; but when it comes to the matter of hearing, we have been, until recently, very much at sea. We have not only lacked a definite unit of measure; we have lacked as well, a uniform, standard method of procedure. The consequence has been the data furnished has been uncertain, unreliable, and inconclusive.

The method commonly employed in this: to make use of a sound of supposed loudness, and to try to estimate the hearing power on the basis of the distance intervening between the source of sound and the subject. A glance will show that such a procedure is full of errors.

For auditory examination three tests are in general use: the watch, the voice and the tuning fork.

1. First, as regards the watch test. Watches differ widely as we well know in the loudness of the tick. There are watches which may be heard normally as much as ten feet away, others only ten inches, and some with such feeble ticks that to be heard must be held in close apposition to the ear. Different examiners will use different watches; therefore, their results are not comparable.

2. As regards the voice test. There are, I know, people who set up the contention that since the chief purpose of hearing is to hear conversation, therefore speech is the logical test of the hearing faculty and the one which should always be applied.

As a matter of fact it is the poorest, and unless used with full appreciation of all the factors involved will give the most erroneous results. In the first place it is impossible to guarantee a fixed standard of loudness because different voices have different carrying power. Much depends upon clearness of enunciation or articulation, and upon the use of emphasis. If sentences or even phrases are used there is wide room for guessing dependent upon the context, and upon the intelligibility of the individual being tested.

Another objection to the use of speech as means of testing hearing, is the fact that the spoken words differ from one another in their pitch quality, which is an important item in audibility. All numerals for example, except six and seven, have a low range of frequency; consonants generally are higher than vowels. Sibilants are particularly high.

Conversation is ordinarily carried on with a range of from 250 to 1,000 double vibrations per second, yet the letter S has ordinarily a vibration frequency in the neighborhood or 4,000 or 5,000 and in some voices as high even as 7,000 double vibrations per second.

Therefore, the examiner who prefers to use isolated words for testing must remember that a word such as *sister* because of its natural high pitch has a different audibility from a word, for example, such as *rabble* or *rubber,* which are of relatively low pitch: and when he employs at one time the numerals *sixteen, sixty* and *sixty-six;* and other times numerals *thirty, forty, forty-four,* he is using really two different standards.

3. As regards tuning forks as a means of testing: with these it is true we can get definite frequencies, but here we have trouble on the score of intensity. While in the case of the voice and watch test, we measure hearing by the distance between the examiner and the subject, in the case of the tuning fork we measure it by the duration of the vibration of the fork. The difficulty is to assure a definite energy in the source of the sound. This depends upon the intensity of the stroke, which is never the same. But even if this were arranged, tuning forks would be very unsatisfactory because decrement of the vibrating period differs for different forks, and the procedure would call for tedious and complicated calculations.

From what has been said I think it must be obvious that the tests in general use are quite inadequate for the purpose of establishing the *acuity* of hearing and principally for the reason that they do not provide for a fixed intensity.

When it comes to the matter of hearing tests for diagnostic purposes, the deficiency is even more pronounced. I have no doubt that if a toll of otologists were taken on the subject of the so-called functional hearing tests, the verdict would be practically unanimous to the effect that they are exceedingly unsatisfactory. In such tests, it is something more than a matter of definite intensity; we must have at our disposal a number of sounds of different frequency, and especially we must be able to test the hearing for notes of very high frequency, for this is essential for the differentiation of types of deafness.

In human hearing, the lower limit is about twenty vibrations per second; lower than that a sound stimulus produces the impression of beats rather than a sound; the upper limit of pitch for man is about 20,000 vibrations per second. Certain animals no doubt hear sounds much higher. It is known, for example, that dogs can hear sounds in the neighborhood of 30,000 cycles and cats as high as forty to 50,000, which is a frequency more than double that of man's.

The introduction of the audiometer is an attempt to substitute a thoroughly scientific procedure, in place of the haphazard, unreliable methods hitherto in vogue. By means of electrical energy, sounds are produced, the frequency as well as the intensity of which can be raised or lowered at the will of the operator. These frequency and intensity levels are clearly indicated on dials on the front of the machine and cards are provided so that they can be charted for record and future reference.

Another great advantage of the audiometer is that it affords us the only reliable means of testing each ear separately. In the ordinary way of testing by sounds emanating from a variable distance, there is difficulty in exclusion of hearing by the ear not being tested. This source of error is practically eliminated by the use of the telephone type of receiver held close to the ear being tested.

The value of the audiometer is not limited to diagnostic purposes, but must be accounted as useful in all instances where accurate measurement is desired, as in the case of school children and in certain kinds of occupation.

Up to date, the only instrument available (except certain special ones designed for physical laboratories) have been very limited in their frequency ranges, giving only four or six or eight tones each an octave apart.

We have ourselves been experimenting with an instrument designed to produce the whole musical scale and more (some eighty or more notes) and to cover the entire possible pitch of human hearing, and which has other features, the advantages of which we will refer to later.

In some audiometers, as the Western Electric, the degree of hearing is expressed in loss of so-called "sensation units," in others it is calibrated on the percentage basis. The latter appeals for its apparent simplicity, but is open to the objection that percentages have different values for different frequencies.

Personally, we favor a calibration in decibels because the decibel is the now accepted standard for scientific sound measurement.

Hearing and loudness are, of course, subjective experiences, and, as such cannot be measured with the same mathematical exactness as physical quantities. Some years ago, however, it was discovered that a certain definite relationship exists between tactile and other sensations and the intensity of the stimulus. This relationship crystallized into the so-called Weber-Fechner law, according to which the energy of the stimulus advances in a geometrical ratio while the ascent in the steps of the sensation was in ordinary arithmetical progression.

What audiometry aims to do is, on the basis of this law, to determine the level of loudness of a perceived sound by measurement of the electrical energy producing it. The unit of measurement employed is the *decibel* which is a logarithmic number actually based upon the intensity of the stimulus, but in effect expressive of degrees of loudness. Zero on the scale is the threshold of audibility, and the loudness of the sound is expressed in units above this level. Testing the acuity of hearing is done by finding just how many decibels are required to reach the lower threshold of a pure sound of a given frequency.

Besides the outstanding defect mentioned as common to all the old methods of testing the hearing sense, namely the lack of measureable intensity of a given sound, we have still to mention another serious scurce of error. I refer to the generally noisy environment in which tests are habitually made. It may be a surprise to many who think they are living in an atmosphere of comparative quiet, to learn how actually noisy the world about them is, most of the time. City dwellers are constantly im-

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mersed in a ground swell of noise, to which they have become generally so accustomed that unless there is an unusual increase, they are hardly aware of its existence. What I think may be particularly surprising is to learn to what extent the noisy environment neutralizes our normal hearing faculty. Do not forget that man's hearing capacity, sensitive though it be, is in certain respects severely limited; not only is it limited as mentioned in each direction of pitch, but also in each direction of intensity. The limits as regards intensity should be reckoned from a point when the sound is so weak it can be barely heard (lower threshold) to the point that it is so loud that it begins to be painful (upper threshold). Now this differs for different frequencies, but even at its greatest, which is the middle range, does not extend over a stretch of 130 decibels. This may not mean much to us unless we recall the decibel measurement of certain familiar sounds.

A sound of a riveter at a distance of thirty-five feet is 115 decibels (almost the limit of hearing)—a noisy aeroplane cabin is 100 decibels, automobile horns are 80 to 90 decibels, average motor truck is 75 decibels, average automobile 65 decibels, ordinary conversation (at five feet) 50 decibels, interior of houses in non-residential section 45 decibels, interior in residential sections 30 decibels. When you consider that at its best the hearing capacity is 130 decibels, how often we are in a situation where this is cut down by 50 per cent and even more! What is particularly to the point is that hearing tests are all the time being made in a noisy environment without realization of how much the results are thus vitiated. The noise level of the average city doctor's office, unless on an exceptionally quiet street, runs from 25 to 35 decibels. Hearing tests under such conditions give erroneous results, and may entirely overlook a loss of as high as 25 per cent.

Conditions are made worse by reason of the fact that the noise does not remain at a constant level, but is subject to severe fluctuations. They change not only from day to day, but from hour to hour and even from minute to minute. This interferes with uniformity of results, and makes comparisons of records almost useless. Testing the hearing under such circumstances might be compared to the attempt to test the sight in a poorly lighted room, in which normal vision is reduced to the neighborhood of 25 per cent, and in which lighting conditions are subject to great and frequent and sudden change.

A noisy environment not only interferes with tests made for the purpose of ascertaining auditory acuity, but it is likewise a serious handicap for tests made by otologists to distinguish different types of deafness, and it is on this account, no doubt, the source of frequent error in diagnosis of ear diseases.

As you know, a vital point in the differentiation of conductive deafness and perceptive deafness lies in the absolute as well as relative defects of air and bone conduction. Of late, increasing emphasis is being placed upon the significance of bone conduction, and the newer types of audiometers are now provided with bone-conduction attachments. Bone conduction theoretically is a true reflex of auditory nerve function. When sound vibrations travel over the regular route, they are modified by the special air conduction mechanism before reaching the cochlea, but when by bone conduction they go directly to the cochlea. Bone conduction therefore should yield direct first-hand information of the condition of the perceptive apparatus. But in a noisy room, bone conduction cannot be properly done because the masking effect of noise seriously influences the result.

I know of no way of eliminating errors that attend noisy examinations except by the use of the sound-proof room. A sound-proof room for one thing is essential if we wish to pick up beginning or slight degrees of deafness. It is the only way we can assure making our examination under uniform conditions so that the record is worth while for future reference, or will mean something definite to doctors elsewhere. It is especially the only way that we can secure correct values in testing by bone conduction, which is of vital importance from a diagnostic standpoint.

Great progress has recently been made in sound engineering, and it is now quite feasible to have, at moderate cost, a room into which will enter not a vestige of outside noise. I have had constructed, under the supervision of a physicist, a room of this kind in connection with my offices (a room within a room), with side walls, ceiling and floor constructed of special insulating material, separated by wide airspace from the containing room, yet provided with ventilation in a way not to interfere with the insulation against sound. It is only since using a sound-

proof room, that I have fully realized the shortcoming of hearing tests made under ordinary conditions.

It seems to me it must be evident from what has beeen said, that in order to make correct hearing tests, whether merely to establish the degree present, or to make differential diagnosis of ear disease, there are two essential requisites: (1) The noise-proof room, (2) the audiometer. The audiometer has come to stay, and it must in the future constitute an indispensable part of the otologist's equipment.

Confession is said to be good for the soul; so it must be confessed that the reports we otologists have been handing you on the state of the hearing function have not been generally very good, in fact they have been very bad, as they could not help being, because we had not at our command the means of making precise measurements.

In the audiometer, we have an instrument that enables us to measure with mathematical exactness the energies which are in known relation with the sensation of hearing. The audiometers at present available do not quite as fully cover all requirements, from the standpoint of diagnosis, that we would like. For one thing we ought to have higher range of frequencies, because high frequency limits are of great importance in the distinction between middle and internal ear disease. Another *desideratum* is the continuous scale, because it is only thus we can pick up evidences of islands of deafness if such exist. That is the reason I have been using in my own work an especially designed audiometer which embodies these features.

This instrument has also another feature not found in any other audiometer, which it seems to me has real practical value: that is a watch tick has been hooked up with the electric current, so that its intensity can be recorded on a percentage basis. The watch tick is an old, time-honored measure for hearing, and this gives us a way of using it free from the objections urged against the use of watches in general.

With or without these refinements the audiometer is a distinct advance over old methods, if for no other reason than it enables us to test the hearing as we were not able to do before, with something approaching mathematical precision. But it has the added advantages of enabling us to test each ear separately, to test them for a variety of frequencies, and to make graphic records, suitable for future and for foreign reference.

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ENDOCRINE ASPECTS OF THYROID DISEASE.*

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The diseases of the thyroid which will be included in this discussion may be classified as:

A. Thyroid insufficiencies
   1. Simple goitre
   2. Myxedema
      a. Infantile
      b. Gull's disease
      c. Simmond's disease
      d. Operative myxedema

B. Hyperthyroidism or exophthalmic goitre.

A brief review of the advances in our knowledge of thyroid disease in the last two centuries may help in understanding the present concept of these disorders. The classical syndrome of hyperthyroidism was first described 150 years ago by Parry and later by Graves and Basedow. There was great speculation as to the role played by the thyroid in this disease. It was not until fifty years after Graves' description that Sir Victor Horsley advanced the theory of its thyrogenous origin. He stated that the thyroid was first affected and that all the symptoms were due to an altered function or dysthyroidism. A year later Möbius claimed that hyperthyroidism was due to a simple hyperactivity of the thyroid without any altered function, i. e., an excess of normal function. This argument has been waged pro and con to the present day with the now generally accepted opinion that the symptoms of hyperthyroidism are due to an increased secretion or activity of the thyroid and not to an abnormal secretion.

*Read before the Piedmont Medical Society, December 12, 1935.

The first knowledge of the physiology of the thyroid came in 1874 when Sir William Gull connected atrophy of the gland with loss of hair, thickening and dryness of the skin and loss of mental and physical vigor. This disease was called by William Ord (1878) myxedema because he thought the subcutaneous thickening was due to mucin formation. Not long after this it was produced inadvertently by total thyroidectomy and was given the name Operative Myxedema and Cachexia Strumipriva by Reverdin and Kocher, respectively. Many of these patients developed tetany and it was not until 1891 when Gley rediscovered the parathyroids that the separate functions of these glands was appreciated.

In the same year Murray demonstrated the remarkable curative effect of injection of a glycerine extract of sheep's thyroid in a case of Gull's disease. The next year it was shown that thyroid substance, whether fresh, dried or cooked, was equally effective when administered by mouth.

In 1895 Magnus-Levy made the monumental discovery that in Gull's disease the heat production was lowered as much as 40 per cent. This same decrease in heat production was demonstrated in thyroidectomized animals. He also found that administration of thyroid extract raised this to normal or above and that in exophthalmic goitre heat production was greatly increased.

Attempts to isolate the active substance had been unsuccessful until 1895 when Bauman found that iodine in a firm organic combination was a normal constituent of the thyroid.

Following this it was found that ingested iodine is stored in the thyroid and if iodine is withheld hypertrophy occurs. In 1907-11 Marine and Williams and Marine and Lenhart showed that:

1. Involution of physiological hypertrophies to a resting state may be brought about by the administration of iodine.

2. That all thyroid hyperplasia is anatomically, chemically, and biologically the same, i. e., with any increase in activity of the thyroid whether due to a physiological, or pathological cause the same change takes place in the gland, thus disproving the theory of dysthyroidism.

3. That in hyperthyroidism the per cent of iodine in the gland is inversely proportional to the hypertrophy and hyperplasia present.

In 1916, Kendall isolated a crystalline compound containing 65 per cent iodine which produced the same pharmacological effects as desiccated thyroid and in 1927, Harrington and Barger were able to synthesize a similar compound called thyroxine. This is the thyroid hormone.

The characteristic physiological effects of thyroxine are an increase in the oxidation in the body of protein, fat and carbohydrate and an increase in the excretion of certain minerals, mainly calcium and magnesium. It may be an indirect factor in resistance to infections as evidenced by a lowering of the iodine store and a tendency to hyperplasia in many acute infections. The heart rate is also increased.

Diet also has an effect on the iodine and thyroxine store in the gland. Diets rich in protein and fat cause a depletion of the store of thyroxine and hyperplasia occurs, while inanition brings about an involution of the thyroid. The thyroid is also responsible for the specific dynamic action of foods, this being absent in thyroidectomized animals.

So far as is known, the thyroid is the only organ capable of producing an iodine containing hormone. Iodine is found in significant amounts in the pituitary and ovary, but considering the close relationship of these organs this may be of thyroid origin.

To sum up what is known of the function of the thyroid, it provides the means, through its iodine containing hormone, for maintaining a higher rate of metabolism than would otherwise obtain. Also, through variations in its activity, it provides a means for varying the rate of metabolism to meet changing physiologic needs.

It has long been suspected that an efficient mechanism exists for stimulating the thyroid through the blood stream. This was assumed to explain the compensatory hypertrophy of the remaining fragment following partial thyroidectomy. Marked hypertrophy of the anterior pituitary in individuals with endemic goitre has been known for many years (1851) and this has been demonstrated experimentally following thyroidectomy. The first proof of a pituitary hormone regulating thyroid activity was demonstrated by Allen and by Smith, who showed that hypophysectomy caused atrophy of the thyroid and Smith later (1922) showed that implants of fresh pituitary restored such atrophic thyroids to normal or even increased activity.

Subsequent work has led to the conclusion that

probably the thyroid can be stimulated only by this thyrotropic hormone of the pituitary. The morphologic and chemical changes following injection of this thyrotropic hormone (hypertrophy and hyperplasia) are the same that are seen in compensatory hypertrophy following partial thyroidectomy or in the developmental stages of spontaneous goitre in man and animals.

While this hormone of the pituitary seems to be the only means of stimulating the thyroid, there is evidence that the thyroid secretion exercises a great influence on the anterior pituitary, particularly regarding the production of thyrotropic hormone. Thus, desiccated thyroid will prevent the loss of acidophylic granules and pituitary hypertrophy which normally follows thyroidectomy and iodine alone will restore the acidophylic granules and greatly reduce the size of the pituitary in animals with hyperplastic thyroids.

The thyroid and anterior pituitary are delicately balanced. Any deficiency of thyroid secretion quickly stimulates the pituitary to produce more thyrotropic hormone, and supplying the thyroid secretion reduces this anterior pituitary activity.

The discovery of the pituitary link offers a rational hypothesis of how gonadal (adrenal cortex and sex glands) insufficiency may stir up the thyroid. The cells of the anterior pituitary produce a number of hormones, one of which is a gonadotropic hormone. A decrease in gonadal activity might cause the pituitary to produce more of this gonadotropic hormone and if the same cell produced thyrotropic hormone it might also produce an increased amount of this substance which would stimulate the thyroid to increased activity.

Endemic goitre and myxedema are believed to be different stages of the same nutritional fault, and are due to thyroid insufficiency.

Myxedema in the light of recent work may be due to either:

1. Failure of the anterior pituitary to produce the thyrotropic hormone.
2. To an exhaustion atrophy of the thyroid.
3. To the operative removal of too much thyroid.

These syndromes are called, Simmond's disease or Pituitary Cachexia, Gull's disease or spontaneous Myxedema, and Cachexia Strumipriva, respectively.

While they all have thyroid insufficiency in common this insufficiency is obtained by different means. In infantile myxedema and Gull's disease it is due to an exhaustion atrophy of the thyroid or lack of thyroid tissue, but in Simmond's disease it is due to lack of the thyrotropic hormone of the anterior pituitary.

There are important general differences between the two. In Simmond's disease exophthalmus does not develop and there is a gonadal atrophy accompanying or even preceding manifestations of myxedema, while after thyroidectomy exophthalmus may occur and not only does gonadal atrophy not occur, but increased sexual activity usually results. The sex gland atrophy of myxedema would now be considered another indication of pituitary failure, while exophthalmus and increased gonadal activity of sexually mature animals would be explained as due to pituitary stimulation.

Collip reports the production of an anti-thyrotropic hormone by repeated injections of thyrotropic hormone. This anti-hormone is present in the serum of these animals and if a small amount of this serum is injected into other animals it will prevent the occurrence of symptoms of hyperthyroidism when they are given as much as 200 times the minimal dose of thyrotropic hormone usually necessary to produce these symptoms. It does not, however, prevent the occurrence of hyperplasia of the thyroid.

The serum of these resistant animals does not exert a direct neutralizing action on the anterior pituitary hormone, but induces in the injected animal reactions of unknown nature, which for a time counteract the effects of the hormone.

Let us now consider hyperthyroidism in the light of these findings. The symptoms are due to an increase in the availability of thyroxine, the only known active product of the thyroid gland. The theory that the thyroid produces some abnormal substance which produces the disease has been generally discarded. The idea of a toxic adenoma no longer fits in the picture. Only about 10 per cent of the nodules found in thyroids are true tumors or adenomata. As far as is known they do not produce any of the symptoms of hyperthyroidism. Their danger lies in the fact that they occasionally become malignant. The other 90 per cent of thyroid nodules are areas of hyperinvolution, that is localized areas of thyroid gland which have undergone hyperplasia either from a physiological or pathological stimulation, and then as they involuted

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or regressed instead of stopping at the colloid stage they have gone farther to the stage of hyperinvolution.

These nodules show three general pictures:

1. Colloid cysts.

2. Localized and apparently encapsulated areas of dilated colloid acini.

3. Areas of degenerated acini with an increase of edematous stroma and extra-cellular colloid.

Because 95 per cent of the cancers of the thyroid occur in these areas of hyperinvolution, it is best to remove them whether associated with hyperthyroidism or not. The presence of these nodules does not necessarily mean a previous hyperthyroidism for the antecedent hyperplasia may have been the result of a physiological stimulus. There must always be a hyperplasia, however, before they can be formed.

Two other explanations of hyperthyroidism present themselves:

1. There may be an increase in formation of thyroxine due to a stimulus from without, i. e., an increase in the thyrotropic hormone; or,

2. There may be an increased rate of removal of thyroxine from the gland with an effort by the gland to compensate for this loss, that is a decrease in the anti-hormone.

The known facts seem to be consistent with the latter hypothesis for the following reasons:

1. In hyperthyroidism there is no evidence of increase of thyrotropic hormone as evidenced by pituitary hyperplasia, except in cases of acromegaly which show evidence of increased activity of the thyroid.

2. In hyperthyroidism there is a decrease in organic iodine, colloid and thyroxine in the thyroid and an increase in organic iodine and thyroxine in the blood and an increase of iodine in the urine.

Thus has developed the concept of a leaking or too porous gland which is emptying its product, thyroxine, into the blood stream with disastrous effects. Harrington has proposed the term "thyroid diarrhea." The cause of this diarrhea is unknown but an interesting hypothesis has been proposed by Collip. He postulates that in the normal individual there is a balance between the thyrotropic and antithyrotropic hormones, and that in hyperthyroidism something temporarily knocks out this anti-hormone with a consequent pouring out of thyroxine. The characteristic remissions and exacerbations in the disease would correspond to an increase or decrease of this anti-hormone. Changes in the physiology of the other endocrine glands, such as pregnancy, or the occurrence of an infection is frequently associated with an exacerbation of this disease. Collip also found that bacterial toxins increased the sensitivity of experimental animals to thyrotropic hormone. It might be that the toxin interfered with the anti-hormone, thereby apparently producing an increased reaction to the hormone.

The relation of thyroid secretion to the development of exophthalmus in hyperthyroidism has long been a controversial question. Marine and Rosen (1934) have shown that at least two factors are necessary for its production experimentally:

1. A relative or absolute deficiency of thyroid secretion.

2. An excess of thyrotropic factor.

Therefore, iodine administration with the intact thyroid or the administration of desiccated thyroid after thyroidectomy, prevents the occurrence of exophthalmus even though large amounts of thyrotropic hormone are administrated.

The occasional occurrence of exophthalmus after thyroidectomy may be explained on these grounds: in these cases the patient is in a hypothyroid state with a consequent increase in the amount of thyrotropic hormone. Such cases have been successfully treated with iodine and thyroid. It is important to recognize this hypothyroid state and not think that the development of exophthalmus is associated with a continued or recurrent hyperthyroidism and on this assumption remove more of an already insufficient gland.

It has been noted clinically that the degree of exophthalmus is not in proportion to the severity of the hyperthyroidism but rather to the duration of the disease. Then to explain the occurrence of exophthalmus in hyperthyroidism on the grounds noted above we would have to assume that the thyroid, after working for a long period of time, has used up its reserve and is no longer capable of responding fully to the stimulation it receives from the amount of thyrotropic hormone being secreted. Thus, although enough thyroxine is liberated to give symptoms of hyperthyroidism there would be a relative insufficiency and a relative excess of thyrotropic hormone.

Why the administration of iodine results in an amelioration of the symptoms of hyperthyroidism is not known. It is associated with an involution of

the thyroid and an increase in the store of thyroxine in the gland. It is generally believed that this effect is temporary. Means and his co-workers, however, present evidence that this amelioration is continued as long as the iodine is continued and that the increase in symptoms after the first improvement following iodine administration is due to an increase in the severity of the disease, and not to the loss of the iodine effect. Thus if the BMR increases while iodine is being administered and the iodine is stopped, there will be a greater increase in the BMR than if iodine had been continued. He explains cases of apparent refractoriness to iodine or an increase in BMR coincident with the administration of iodine on the grounds that the patient is having an exacerbation of the disease at the time the iodine is started and were iodine not given at this time there would be a further elevation of BMR in the former case and a greater increase in the latter.

Although occasionally we see a spontaneous cure, the treatment of choice is operation. Why partial amputation of the thyroid results in a cure in practically all of the cases is not known. It is hoped that with an increase in our knowledge of the physiology of the thyroid and other endocrine organs, a non-operative cure will be found.

BIBLIOGRAPHY

1. Rienhoff, William F., Jr.: "Diseases of the Thyroid Gland," Practice of Surgery (Lewis), Vol. VI., 1932.
2. Marine, David: "The Physiology and Principal Interrelations of the Thyroid," *J. A. M. A.*, 104:25, 1935.
3. Marine, David: "The Pathogenesis and Prevention of Simple or Endemic Goiter," *J. A. M. A.*, 104:26, 1935.
4. Means, J. H.: "Therapeutics of the Thyroid," *J. A. M. A.*, 105:1, 1935.

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POLIOMYELITIS.*

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Poliomyelitis, first known as a sporadic disease, later as an epidemic disease has always been puzzling in its diagnosis and manifestations. Briefly, the symptoms and signs of a typical case are a few days of fever, general malaise, with possibly nausea and vomiting, often sore throat, stiffness and pain of the neck and back muscles, headache and paralysis of a group or groups of muscles. At first the tendon reflexes are active but later are lost. As epidemics of the disorder come and go in different parts of the world the diagnosis frequently becomes more baffling and our ideas concerning many phases of the disease change with succeeding epidemics.

In discussing poliomyelitis, probably the most important points for consideration are, first, the diagnosis, then the treatment, and, lastly, the control of the epidemic by public health measures, vaccines, etc.

In the face of an epidemic one is prone to call poliomyelitis any disorder which is acute and accompanied by fever, gastro-intestinal upsets or respiratory symptoms. During the Los Angeles epidemic of 1934 at the peak month, of 1,134 cases that were admitted to hospitals, most of which were suspects, only 245 were actually poliomyelitis. This suggests the question whether or not there are abortive cases. There is considerable evidence to answer this in the affirmative, although to my knowledge it has not been proven except in a few instances.

The first suggestion that there might be cases of abortive poliomyelitis was brought out by Wickman[1] in 1913. He believed that these cases represented a large number in any epidemic but he was unable to state the exact ratio. Draper[2] also expressed the opinion that there were abortive attacks and stated that the usual early symptoms of sore throat, headache, gastro-intestinal upset, etc., were the only symptoms in from 50 to 80 per cent of the total incidence of the disease.

The most comprehensive and suggestive study of abortive poliomyelitis was made by Paul[3] and his co-workers in 1932. They studied a large number of children with symptoms suggesting minor ill-

*Read before the Seaboard Medical Association, December 5, 1935.

nesses, which are the early symptoms of known poliomyelitis. These studies were made in 222 families from which one or more *bona fide* cases of poliomyelitis had developed. Oral washings from twelve of these cases were injected intracerebrally in twelve monkeys and two of the animals developed the disease. The other monkeys were later injected with known virus and found susceptible. Families in which one or more cases of poliomyelitis had developed, the remaining children in the age group of five to nine years, 32 per cent developed minor illnesses. In a controlled group of fifty families in which poliomyelitis had not developed and in children below the age of ten years only 9 per cent developed minor illnesses. The ratio of minor illnesses to poliomyelitis in the three communities comprising their studies was six to one. These investigations show that there is considerable evidence generally to believe that there are abortive cases of poliomyelitis and in two of their cases the evidence is conclusive. At any rate there seems to be a close relationship between poliomyelitis and cases presenting symptoms of sore throat, temperature, gastro-intestinal upset, etc., occurring during epidemics.

The cases that present the classical picture with definite spinal fluid findings and muscle group paralysis do not offer diagnostic problems. There are cases, however, in which it is quite necessary to differentiate from other infections of the central nervous system, and here our diagnostic bag of tricks sometimes becomes exhausted and the true condition is definitely established only at autopsy. Such a case came under my observation during the New York epidemic in 1916. The patient was the young daughter of a physician who said his child did not have poliomyelitis because the cell count of the spinal fluid was not increased. The health officer insisted that the diagnosis was poliomyelitis. The autopsy findings were the most marked of all cases that came under our observation during the epidemic.

Many cases of Waddell's recent study did not show an increase in cells and some of the cases in the Los Angeles epidemic of 1934 were without spinal fluid findings. In the study of thirty six cases by Masters and Sutton, three had a cell count of below ten. Overholser[4] reports a series of 150 cases in the post-paralytic stage where 221 spinal punctures were done and the cell count was below ten in 37.4 per cent. It would appear, therefore, that it is possible to have the disease, certainly in the very early stages and in the post-paralytic stage, without definite spinal fluid changes. Probably the truth of the point depends upon the time of the puncture, as it is inconceivable that a disease with the pathology of poliomyelitis could occur without some spinal fluid findings at some time during its course.

Absolute rest in bed in the treatment of the pre-paralytic stage is quite essential. Manipulation of the patient for examination and nursing care should be reduced to the minimum. Drugs for the relief of pain should be used when necessary. Probably the most important point in the general treatment of the early paralytic stage is immobilization of the paralyzed limb in its normal position. Some appliance to prevent the bed covering from touching the body may be comforting to the patient, and in some cases a board placed under the mattress is, for obvious reasons, desirable. Physiotherapy of any kind should not be used as long as there is any tenderness of the muscles or fever. After the acute stage has passed the case resolves itself into treatment by orthopedic measures.

Many acute cases have been treated in the early stages in various epidemics throughout the country by the administration of immune serum. In 1916, the Harvard Infantile Paralysis Commission, of which Peabody[5] was the head, treated fifty-one cases in the pre-paralytic stage by this means and 69 per cent recovered without paralysis, 21 per cent recovered with paralysis and 10 per cent died. In the eleven paralyzed cases the results were slight in six. Sixty paralyzed cases were treated with doubtful results, the mortality being about average for the epidemic. When Peabody's cases were compared with Draper's untreated cases in the New York epidemic the same year, his results were about 10 per cent better than in the untreated cases. Many workers have claimed that immune serum is probably of benefit in many pre-paralytic cases.

Reports from Los Angeles indicate that immune serum used to prevent poliomyelitis is worthless, but used early in the treatment of the meningitic phase it is of distinct benefit.

Brodie and Park,[6] of New York, have been working with a vaccine and claim to have demonstrated some immunity in monkeys. The vaccine is a spinal cord emulsion prepared from monkeys injected with poliomyelitis virus and the cord treated with forma-

lin to inactivate the virus. They state that their vaccine does no good where exposure has taken place and antibody develops in one week in children given the vaccine where they have not been exposed. Nine thousand children have received the vaccine and, after two doses, six out of seven have shown antibody which has been maintained for eight months. They state that the vaccine does not store well and after two and one-half months in an ice box no antibody can be demonstrated. Their conclusions are that the vaccine stimulates antibody and thus protects.

Gilliam,[6] of the Public Health Service, made some field studies with Brodie and Park's vaccine in North Carolina. He selected a group of children under ten years of age and inoculated 458 in an area of the State where no cases of poliomyelitis had developed. Fifty per cent had local reactions which varied from redness of the part to abscess formation, and 3.7 per cent had general reactions, one of which for a time seemed serious. None of the inoculated cases were reported as developing the disease. Apart from the reactions I fail to see any value of this study. The concensus of opinion at the present time is that the vaccine of Brodie and Park is safe but there is not sufficient experimental evidence to indicate its value.

Kolmer's[6] vaccine is made from the spinal cord of monkeys which have been inoculated with poliomyelitis virus and the cord devitalized with sodium ricinoleate. His animal experiments were confined to forty-two vaccinated monkeys which received the virus and did not develop the disease. A total of 10,725 children have received the vaccine throughout the country, 346 of these children residing in Philadelphia. In this group no cases have developed that have received three doses of the vaccine but ten cases have developed several days after receiving two doses. Kolmer's conclusions are that his vaccine produces antibody sufficient to protect for an unknown length of time and states that he has protected one monkey for three years.

An analysis of Kolmer's ten cases that developed the disease is interesting. They developed a few days after the second dose was given. If the injection was given in the leg this was the limb that was paralyzed and if it was given in the arm, that member or the opposite was the site of paralysis. There is sufficient evidence to believe that ordinarily the virus of poliomyelitis enters the body through the nose and then attacks the nervous system. It is significant that these ten cases developed the disease after the second dose of vaccine and the relation of the paralysis to the limb injected might suggest that an insufficiently inactivated virus gained access to the spinal cord through the nerves of the injected limb. At any rate there is not sufficient evidence to indicate its value and some investigators are doubtful of its safety.

A study of the epidemics of poliomyelitis in different parts of the country since 1916 has confused our conception of the disease and consequently methods for its control from the standpoint of the public health. There seems to be little tendency for poliomyelitis to spread in families. It has been shown by Brodie and Park, Kolmer and others that the older the child the more antibody he has; also there may be some natural immunity or immunity from previous abortive attacks. These may partly explain the non-familial character of the disease but not entirely. In the New York epidemic of 1916 only 4.3 per cent of 8,634 families attacked were reported as having more than one case. The health committee of the New York Academy of Medicine and the New York Neurological Society reported the conclusions of their study of this epidemic as follows: Poliomyelitis is a communicable and slightly contagious disease; the greater percentage of cases arise without any history of personal contagion; that uninfected and healthy children in wards containing infected cases do not take the disease, and that the number of cases per 1,000 is greater in uncrowded country districts than in crowded urban centers.

This year in Tennessee there were seventy-six cases with a mortality of 17 per cent. The only precaution taken were that children under sixteen years were prohibited from traveling.

In the Los Angeles epidemic of 1934,[7] all definite cases were segregated; all suspects were held ten days for observation, and all known direct contacts were held for fourteen days. This epidemic had more familial cases than any past epidemic; also the death rate was lower. There never had been an epidemic in which so many doctors, nurses and hospital attendants developed the disease. In the New York epidemic of 1916 not a doctor, nurse or hospital attendant developed the disease. In the Los Angeles epidemic a Children's Hospital, near the General Hospital where the majority of the cases

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were admitted, with a daily turnover of twenty-five to thirty children and an average residence population of 250, not a single case occurred.

With such contradictory findings in various epidemics, it would seem that we know little more today than we did years ago about the epidemiology and the control of this usually epidemic disease.

BIBLIOGRAPHY

1. Wickman, Ivan: Acute Poliomyelitis, Nervous and Mental Disease Monograph, Series 16—1913.
2. Draper, George: Acute Poliomyelitis, Nelson's Loose Leaf Medicine, 1926.
3. Paul, John R.; Salinger, Robert, and Trosk, J. D.: Abortive Poliomyelitis, *Jour. A. M. A.*, 1932, 98, 26, 2262.
4. Overholser, W.: The Cerebrospinal Fluid in Anterior Poliomyelitis, *Boston Medical and Surgical Journal*, 1917, 177-480.
5. Peabody, F. W.: Harvard Infantile Paralysis Commission, *Boston Medical and Surgical Journal*, 1917, 176-637.
6. Park, William H.; and Brodie, Maurice; Kolmer, John; and Gilliam, A. G.: Part of a Symposium on Poliomyelitis read at the American Public Health Association at St. Louis, November 19, 1935.
7. Stevens, Geo. M.: An unpublished paper read before the Public Health Association of Southern California on October 6, 1934.

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KERATO-CONJUNCTIVITIS DUE TO EMETINE HYDROCHLORIDE.*

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In 1925 when I saw my first case of kerato-conjunctivitis due to the destructive influence of emetine hydrochloride by external ocular contact, I gave it only a passing consideration from the etiological standpoint. Ten years later, in 1935, when a second one as severe as the first appeared, my interest in this respect was aroused, and I decided to investigate the subject. The literature concerning it is not voluminous, and apparently only a few cases have been reported.

In 1905, Levin and Guillery described the irritant effect of ipecac dust on the mucous membranes as due to its contained emetine, and spoke of the possibility of it producing corneal ulceration. Lyons, in 1915, and Levy and Rountree, in 1916, reported on the general toxicology of emetine, enumerating, among its effects, vomiting, purgation, hemorrhagic swelling of the gastro-intestinal mucosa, great engorgement of the abdominal vessels, and peripheral neuritis. J lt, Fromget and Harriet described an eczematous form of conjunctivitis which was caused by dry ipecac. J. B. Blue, in 1915, reported on the danger of getting emetine into the eyes, calling attention to the subsequent inflammatory reaction. In 1918, Schevensteen published his article on a frequently self-induced type of conjunctivitis in the Belgian army, resulting from powdered ipecac. It was acute and of short duration when the powder was put in once, but became chronic when it was used repeatedly. In 1918, Jno. M. Robinson reported two cases of traumatic conjunctivitis induced by the unintentional instillation of what he later confirmed to be a 2 per cent solution of emetine hydrochloride. One was a patient for whom he had ordered a 2 per cent solution of homatropine, and he was the other victim when he put a drop in his own left eye to prove to her that she need not be alarmed, as homatropine could not produce a serious condition of the eye. In each instance, about twenty-four hours later, there was a sharp sensation like a foreign body in the eye, intermittent in character, which continued to increase in severity un.il it reached its height in about eight hours time. There was a scratchy feeling, intense at about five-minute intervals, marked photophobia and excessive lachrymation, also a sharp pain radiating through the infra- and the supra-orbital regions. Vision in the lady's case was not actually disturbed. The upper eye-lid was edematous and there was a pronounced combined conjunctival and ciliary injection. In his case a spasmodic compound myopic astigmatism of —3.50 D = —3.50 $D^c \times 180°$ existed for a fortnight, and for two weeks after the myopia had disappeared he could

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read without his proper presbyopic correction of +1 D. Cold compresses gave some relief. Experimentally, later, on rabbit's eyes he confirmed that it was emetine that had been substituted by mistake for the homatropine.

But emetine, by actual external ocular contact, can produce lesions of a more severe nature than the above reports, with the exception of that of Levin and Guillery, indicate. Those likely to be victims are, naturally, people who come in contact with the drug, such as physicians, those engaged in its extraction, those concerned in its distribution, and patients to whom it is being administered.

Following ocular contact, the discomfort for the first eight to twenty-four hours may not be so pronounced, but later, with the peeling off of the devitalized corneal epithelium, the constant sensation of grit in the eye, the intense combined circumcorneal and conjunctival congestion, the marked photophobia and the excessive lachrymation certainly presents a damaged eye and an extremely uncomfortable one. The destroyed epithelium was, no doubt, rubbed off by contact with the palpebral conjunctiva of the upper lid, as in each of the two cases which I will report the area in which this desquamation had taken place was at the center of the cornea, and in each instance was about five mm. in diameter. No doubt, the extreme discomfort did not appear until this exfoliation had occurred, thus accounting for the initial period of from eight to twenty-four hours in which the discomfort was not so annoying. Edema was present in both eyelids, but was much greater in the upper one.

The treatment of these cases is similar to that of traumatic kerato-conjunctivitis of chemical origin, and should in these cases be directed to the removal of any of the causative agent remaining by flushing out the conjunctival sac with a sterile normal saline solution, with a saturated boric acid solution, or, if these are not convenient, with clean sterile water; to providing comfort for the patient; to preventing as far as possible by acceptable known methods, infection, which, if it appears, might prove to be disastrous to the eye; and to guarding, as far as possible, with the judicious use of a suitable mydriatic against a complicating iritis which might arise.

Of the local anesthetics, useful as a measure toward comfort, none are more satisfactory than nupercaine in from a one-half to a one per cent aqueous solution. It not only produces a sufficiently deep anesthesia, but its prolonged effect makes its use necessary comparatively infrequently in providing relief. And I might digress at this time to state that in any case in which you have a break in the corneal surface it will give your patient satisfactory, prolonged relief from the discomfort, and will be gratifying to you in being able to secure it for him. And, according to Wm. C. Minnich, the nupercaine base in a one per cent ointment can be used safely for the same purpose. It has no cycloplegic action, produces no harmful effect on the corneal epithelium, and I have seen no toxicity, either locally or systemically, from its use in many cases in the last two years. Other local anesthetics that have no cycloplegic action and exert no deleterious influence on the corneal epithelium, such as holocain, butyn, pantocain and others can be used but they will not afford your patient the same degree of relief that the solution of nupercaine will.

Not only because of the photophobia, but also to prevent exposure to the wind and to the dust, the wearing of a suitable eye-shade, such as Oppenheim's or a dressing, is necessary. For protection against infection, the daily instillation of a one or two per cent solution of mercurochrome, or the use of White's ointment, or both, because the ointment not only possesses germicidal properties but is also soothing and is an aid to comfort. Heat in the form of wet fomentations and by pasteurization promotes healing and is soothing. Because of the complicating iritis which may appear, atropine, if no contra-indication exists, should be employed.

The following two cases, both of which are physicians, illustrate its possible damaging effects by external ocular contact.

Case One.—E. J. M, Jr.,—On January 9, 1925, while injecting a solution of emetine hydrochloride into a patient's arm, the barrel of the syringe became detached from the needle and the stream of the solution went against the patient's arm and spattered into the doctor's right eye At first he gave it very little thought, but some time later when it became uncomfortable he came to consult about it. At that time there was considerable combined circumcorneal and conjunctival injection, photophobia, excessive lachrymation, and the coagulated epithelium was wrinkled, but there was no break in the corneal surface. The next morning when he returned to the office the circular central portion of

the corneal epithelium was missing, having peeled off, exposing Bowman's membrane in an area about five mm. in diameter; also, there was pronounced edema of the upper lid and some of the lower one. The combined ciliary and conjunctival congestion was intense and there was extreme photophobia and excessive lachrymation, which indicated a very uncomfortable eye. Atropine, White's ointment, holocain, and pasteurization were used daily until the twenty-fifth. During this period he wore an eyeshade. On the twenty-ninth when he was discharged, the eye had fully recovered, the epithelium had fully regenerated, the cornea was clear and the eye was comfortable.

Case Two.—W. S. C., thirty-five years of age, male, from North Carolina. While giving a patient, a victim of amoebic dysentery, a hypodermic injection of emetine hydrochloride the syringe barrel became detached from the needle and the stream of emetine solution went against the patient's arm and spattered into the doctor's left eye. This occurred on August 19, 1935. He immediately flushed his eye out with clean water. Later that day his eye became so uncomfortable that he consulted an ophthalmologist in Raleigh, who told him that he had an iritis, for which he treated him, but his eye remained so uncomfortable that he was unable to get any rest. So he came to Richmond to consult about his condition. I saw him on Thursday, August 22nd. He had not been able to secure any relief since the day of the accident because of the constant sensation of grit in the eye and the rather sharp pain at times. His eye was intensely red from the combined conjunctival and circumcorneal congestion; there was edema of both lids, that in the upper one being more pronounced; there was marked photophobia, excessive lachrymation, and exfoliation of the corneal epithelium, with the area, about five mm. in diameter, being at the center. He had a pressure bandage on when he came in, but it had not afforded him any relief. His pupil was well dilated, due to the mydriatic effect of the atropine which he had been using. I was able to give him immediate relief from the discomfort by the instillation of a drop of one half of one per cent nupercaine solution. On the morning of the twenty-third he informed me that he had spent his first comfortable night since the accident. Nupercaine, White's ointment, pasteurization, mercurochrome, atropine and the wearing of a suitable eyeshade were ordered for him, and used daily until the twenty-ninth, at which time the improvement was so marked that he was allowed to return to his home in North Carolina. The epithelium had practically completely regenerated, the congestion was much less intense and the need for the nupercaine was no longer so urgent. He continued the use of the atropine, White's ointment, and the nupercaine when necessary, while at home. I saw him again on September 2nd, at which time the eye was comfortable and about fully recovered, only a very faint degree of injection remaining and the epithelium completely regenerated.

These two cases should serve as a reminder to those of us who employ this drug in our work to exercise extreme care in its handling, as it can produce ocular lesions of a more severe nature than have been reported in the past. It is needless to say that, aside from the marked discomfort and the interference with one's work, there are possible serious complications that may result in loss of the eye or in a badly damaged eye with a considerable diminution in visual acuity.

BIBLIOGRAPHY

1. Levin and Guillery: Die Wirkungen von Arzneimitteln und Giften aus das Auge. 1905. *B. I. S.*, 774.
2. Lyons: *Am. Jour. Med. Sc.*, 1915, p. 97.
3. Levy and Rountree: *Arch. of Int. Medicine*, November, 1916.
4. Kalt, Fromget and Harriet: Ophthalmic Year Book, V. 13, pp. 108 and 129.
5. Blue, J. B.: *Jour. A. M. A.*, V. LXV, p. 1297.
6. Schevensteen: *Am. Jour. of Oph.*, V. One, 1918.
7. Robinson, Jno. M.: *Am. Jour. of Oph.*, V. One, 1918.
8. Minnich, Wm. C.: *Am. Jour. of Surgery*, December, 1935.

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CEREBROSPINAL FLUID IN TREATED SYPHILIS—532 CASES—DISCUSSION OF POST-SPINAL HEADACHES.

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In spite of the fact that syphilologists are agreed that all cases of syphilis, early and late, should have an examination of the spinal fluid, this practice is neglected. No new or original material is offered, but discussion of this important test is submitted for emphasis. Stokes aptly says, "the examination of the spinal fluid has risen in the last ten years to a position rivalling that of the blood serological tests in the practice of clinical syphilology."

Changes occur in the spinal fluid many months and often years before subjective symptoms and objective signs appear that can be detected by neurological examination. Failure to insist on this test in syphilis can be considered as absolute neglect.

Over one-half of the 532 cases here reported are from the City Health Department Syphilis Clinic and the remaining ones from the hospital clinic. All spinal fluid examinations were made at the George Washington University Hospital. Cooperation with the hospital was not only a service for the patient but also served as additional teaching material at the University.

Of these 532 cases examined, 150 were cisternal punctures and those remaining were lumbar punctures, none of which were hospitalized for lack of facilities. Verbal and written instructions were given every patient for post-operative care. To each patient was explained the importance of the examination and serious consequences that might arise if the test was not done. At first there was some difficulty in gaining the full cooperation, but after a few were done and the satisfied patients came back spreading the news, the task was easier, many patients requesting the examination before we thought it time. No doubt the paucity of post-operative symptoms noted was due to the cooperation of the patient, which in turn is attributed to the fact that we approach the patients in a friendly manner and attempt to manifest interest in their individual problems. Speaking their language, with a little persuasion and explanation, goes further than dictation, and once this important confidence is gained the rest is easy.

Each patient was thoroughly studied before the operation and all precautions observed.

Some of these cases were used for demonstration purposes to the students; most of them, however, were performed by interns and students, starting them on the easier cases, such as men with thin backed anatomy. To secure the interest of students, give them some practical work to perform themselves, and, while some mistakes are made, when under direct supervision, they are few and inconsequential.

Space will not be taken here to describe the technic of lumbar puncture in detail, as this can be found in any text on the subject. The whole secret of easy lumbar puncture lies in the proper position of the patient and knowing the points of orientation. For beginners we use the sitting position which obviates many pitfalls that occur in the operation. This position tends to post-operative headaches more frequently than the supine posture, but as soon as the small amount of fluid is withdrawn, the patient is placed on a cot with the hips elevated, face down, for an hour or so of rest. A hypnotic is given to the patient by mouth one-half hour before the puncture which not only quiets the patient, but also seems to act as a preventive for post-operative headaches.

Of these 532 cases examined, 75 per cent were colored and 25 per cent white; 60 per cent males, 40 per cent females, ranging in age from seventeen years to sixty years, average being twenty-six years, all with six months or more of antisyphilitic treatment. Seventy-two were spinal fluid positive, Wassermann and Kahn reactions, or 13.5 per cent. This percentage is lower than reported by other workers. This may be explained by the fact that a large proportion of our cases were of the colored race whose syphilitic complication tends more toward the cardiovascular type. We analyzed the colloidal gold reaction, made cell counts and tested for globulin, but, since the colloidal gold reaction is so unreliable, results were not worthy of recording.

Contraindications to Spinal Puncture:—While each patient should be thoroughly studied before

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spinal puncture is performed, there are relatively few contraindications for this operation. The main contraindications are brain tumor of the subtentorial type and acute infections, such as erysipelas or cellulitis of the back. When there is a deformity of the spine in the lumbar region, it is advised to resort to the cisternal route, because there is danger of breaking a needle. Stokes says that "a spinal puncture should never be done in the presence of an untreated acute syphilis because at that time the blood stream is filled with spirochetes and there is considerable possibility of artificially creating a neural syphilis."

Causes and Treatment of Post-Spinal Puncture Headaches:—Some syphilologists use a nineteen gauge needle and others use a twenty-three gauge; we prefer a twenty-gauge standard stainless steel needle, with a medium bevel point. The large needle may cause too large a hole in the dura and induce drainage of fluid after the operation is concluded. The twenty-three-gauge needle is so small that the fluid must be aspirated with a syringe; also, there is danger of it breaking.

The rate of formation of cerebrospinal fluid, spoken of as "secretion pressure," is subject to physiological variation. The pressure is increased in hyperemic and inflammatory conditions of the brain, and decreased by those conditions that cause a lessening of the blood supply of the choroid plexus. It is said that a spinal puncture done several hours after fluid has been withdrawn reveals a pressure higher than the pressure previously recorded. This is explained by an increased "secretory rate." This may be one of the causes of headache following the puncture in some cases.

Others report the headache following the puncture is due to leakage of the spinal fluid from the subarachnoid space through the hole in the dura mater made by the needle. In some cases the hole remains open for an unusually long time, and it may be that a tuft of arachnoid has herniated through it and acts as a wick and causes a continued drainage.

The delay in symptoms following the lumbar puncture with an increase of cells in the fluid, have led some observers to advance an aseptic meningitis at the puncture point as the cause of the headache.

Treatment of Post-Spinal Headache:—The headache is worse when the head and shoulders are raised, but completely disappears when the head and shoulders are lowered. The primary treatment for this condition is preventive: first, by expert operation careful technic and small needle, and, secondly, by rest after the withdrawal of the fluid.

To reduce the incidence of headaches following lumbar puncture, Sheppe advocates a twenty-two-gauge needle with a sharp tapered point and that it be withdrawn slowly, allowing the entrance of air into the subdural space.

Some have reported relief from this condition by use of pituitary injections, but our experience with this drug is not favorable.

Zappala advocates intradural injection of 1 per cent solution of dextrose in severe and obstinate cases until the headache disappears. According to the author, the volume of the solution injected makes the hypotension disappear at once and therefore the cephalalgia, while the slightly irritating action of the dextrose on the choroid plexus removes its temporary inhibition to secretion of the fluid. Zappala concludes that the reflex inhibition of the choroid plexus is the true cause of hypotension, which in turn is the cause of the headache.

Conclusions:—Examination of the spinal fluid should be done on all cases of syphilis as very important data may be obtained from this test.

Routine examination of 532 cases of treated syphilis, 75 per cent of which were colored, showed 13.5 per cent positive for asymtomatic neuro-syphilis.

Of these 532 cases performed, 150 were by the cisternal route, and, while this operation obviates the post-operative headache, we feel the procedure is too delicate for routine use and for the present we recommend the spinal route.

Theories are cited explaining the cause of post-lumbar puncture headache, but the real truth for this complaint remains to be discovered.

While post-spinal headache is a bothersome problem for the syphilologist, the data obtained from the patient with syphilis far outweighs the headache in the few cases noted.

REFERENCES

Stokes: Modern Clinical Syphilology, W. B. Saunders Co., 1934.

Moore: The Modern Treatment of Syphilis, Charles C. Thomas Co., 1933.

Levinson: Cerebro-Spinal Fluid, C. V. Mosby Co., 1929.

Zappala: Pathogenesis and Treatment of Cephalalgia Following Spinal Anesthesia, Policlinico, Rome. 41: 923-962, June 18, 1934. Practical Section.

Torbert: The Safety of Lumbar Puncture for Ambulatory Patents. Department Dermatology and Syphilology, Stanford University Medical School. *Arch. Derm. and Syph.*, 30: 692-696, November, 1934.

Sheppe: The Relation of Negative Pressure in the Epidural Space to Post-Spinal Headache. *Amer. J. Sc.*, 188:247, August, 1934.

Nelson: Post-Puncture Headaches: A Clinical and Experimental Study of the Cause and Prevention. *Arch. Derm. and Syph.*, April, 1930.

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Abstracts

Vacation Post-Graduate Cruise, Seaboard Medical Association of Virginia and North Carolina, S. S. Reliance, June 14-19, 1936.

(Continued from page 446.)

A RADIOLOGICAL CONSIDERATION OF SOME LESIONS OF THE ESOPHAGUS.

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In this discussion the instructor reviewed the commoner lesions of the esophagus with which a radiological study is a distinct aid. He mentioned the precision to diagnosis which is possible with the advent of the X-ray and the esophagoscope, thus having access to direct and indirect inspection.

He mentioned dysphagia or difficulty in swallowing as the outstanding and sometimes the only manifestation of esophageal pathology. This symtom alone is sufficient indication for an X-ray examination of the neck, chest, and swallowing function or esophagus. The fluoroscopic observation is by far the most important part of the roentgen examination of the esophagus. Unfortunately, esophagoscopy is not available in all communities. In cases in which the X-ray reveals any evidence of disease in the esophagus an intensive study should be made by a competent esophagoscopist. With persistence of symptoms with negative X-ray findings, an esophagoscopic examination should be insisted upon.

Carcinoma:—In males beyond the age of forty, complaining of difficulty in swallowing, carcinoma should be foremost in mind. Malignancy occurs less frequently in women. Dysphagia means obstruction, and, when this occurs in carcinoma of the esophagus, the case is practically hopeless in the majority of the instances. Carcinoma occurs in any portion of the esophagus; it is usually seen roentgenologically as a localized obstruction with an irregular filling defect encroaching upon the lumen of the esophagus. The obstruction is seldom complete and this fact along with the rapid progress of the growth, prevents any marked degree of dilatation of the esophagus proximal to the lesion, which occurs in many benign conditions. The X-ray diagnosis of carcinoma of the esophagus should always be followed by a biopsy, since the prognosis is entirely dependent upon whether or not the lesion is actually malignant. Most benign lesions are amenable to therapy; malignancy, on the other hand, is seldom cured by our present methods of treatment.

Benign Strictures:—Cicatricial contraction or benign stricture of the esophagus is most commonly due to swallowing caustic fluids, particularly lye. This lesion usually occurs in children and young individuals, in contra-distinction to carcinoma. Obstruction may at times be complete. There is, as a rule, considerable dilatation of the proximal esophagus. The smooth contour of the lumen at the site of obstruction also serves to distinguish this lesion from malignancy. Careful dilatation at frequent intervals, under direct vision through the esophagoscope, serves to cure this condition.

Diverticulum:—This is a fairly common lesion of the esophagus. Many diverticula give rise to no symptoms and are found incidentally in routine X-ray examinations of the gastro-intestinal tract. Many are small and of no clinical significance. The larger diverticula are usually congenital in origin and occur most frequently in the cervical portion of the esophagus. Thus, they are readily accessible to surgery. In addition to some dysphagia there is likely regurgitation of food; it is sometimes possible a patient may facilitate regurgitation by upward massaging his neck. The roentgen examination reveals a characteristic out-pouching or sac-like protrusion from the lumen of the esophagus. The size varies, sometimes sufficiently large to press upon and actually obstruct the esophagus. The surgical excision of diverticula in the neck is greatly facilitated by the use of the esophagoscope.

Varices:—Esophageal varices are not very common, but are important since they roentgenologically simulate malignancy. The patient having dilated, elongated and tortuous esophageal veins, resembling those seen in hemorrhoids, a result of back pressure, as is the case in cirrhosis of the liver,

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produces a lesion which is referred to often as "esophageal piles." The involvement occurs first at the cardiac end, but may involve nearly the entire esophagus. Rupture of these veins, which occasionally occurs, produces a massive hemorrhage. X-ray studies reveal a marked persistent irregularity of the lower portion of the esophagus with very little obstruction. The diagnosis can rarely be differentiated except by a consideration of the clinical history, which should differentiate the varix from carcinoma. The diagnosis can be made by the esophagoscope. No biopsy should be attempted, lest a serious hemorrhage be induced.

Cardiospasm:—This fascinating lesion has been variously termed phrenospasm, preventiculosis, and achalasia, indicating little understanding of its real etiology. It is most frequent in women, usually shows a history of years of difficulty in swallowing, and, as a rule, the patients are well nourished. Roentgenographic study reveals a characteristic funnel-shaped obstruction at the lower end of the esophagus with considerable dilatation of the entire thoracic portion. The esophagus may be larger than the large intestine, and is usually quite tortuous. The size of the dilatation as well as the smooth contour serves to differentiate from carcinoma. The esophagoscope serves to confirm the diagnosis. Malignancy and cardiospasm are rarely associated.

Foreign Bodies:—The more common foreign bodies found in the esophagus are coins, safety pins, bones, and jack stones. These objects lodge in the esophagus of the child more frequently than in the adult. A prompt study should be made by the X-ray, and prompt removal done by means of the esophagoscope, if serious complications are to be prevented. Considerable skill is required in the removal of foreign bodies from the esophagus, particularly such pointed objects as pins and jack stones. The complications arising as the result of lodgment of foreign bodies are cervical abscess, subcutaneous emphysema, mediastinitis, perforation of the aorta and empyema.

Dr. Kornblum in his hour's lecture brought home to us the following conclusions:

1. Every case of dysphagia, or difficulty in swallowing, should be promptly investigated, and clinical history, symptoms, roentgenographic study made, together with inspection with the aid of the esophagoscope.

2. It is highly important to discover the non-malignant cases as early as possible in order that peace of mind may inure to the usually apprehensive subject, with "unstrung nerves."

3. If the diagnosis proves to be malignant, an early knowledge of this fact enables us to do much to prolong life and add comfort to the unfortunate victim.

OBSERVATIONS ON THE TREATMENT OF ACUTE HEAD INJURIES.

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The treatment of acute head injuries is of interest to nearly every department of clinical medicine. The frequency of these injuries and their occurrence in places where the advice of a specialist is not always easily procurable make it important that head injuries should receive increasing attention both in the medical schools and at meetings of medical societies.

In the management of a large series of acute head injuries we have had an opportunity to utilize various methods of treatment that have appeared from time to time. In our experience some of these treatments, such as dehydration and routine spinal puncture which have been enthusiastically endorsed in certain clinics, have proven not only useless in the majority of cases but may be actually harmful.

Head injuries may be divided into two large groups—those in which increased intracranial pressure results from injury, and those in which the intracranial pressure does not seem to be elevated, or, if so, the increase may be slight. Serious injuries may be found in either group. Some of the most severe injuries may be among those in which there is no increase in intracranial pressure and fatality may result in patients whose intracranial pressure is below the average normal.

While there is much difference of opinion as to the treatment of acute head injury, there is no difference of opinion as to the importance of preventing infection by adequate treatment of contused lacerations of the scalp and compound fractures of the skull with contaminated injury of the brain. We believe that the treatment of scalp lacerations and compound depressed fractures of the skull with laceration of the dura is frequently inadequate. Excision of the edges of a contused scalp laceration and operation upon the compound depressed fracture, as early as the patient's general

condition will permit, are important factors in better results. The mere elevation of depressed fragments of bone in compound fractures when the dura is torn and the underlying brain macerated, is not sufficient in these cases. Not only should thorough disinfection of the scalp and removal of the bone fragments be done, but devitalized brain tissue should be carefully removed and all bleeding points stopped. The dura should be tightly closed in these cases and, if drainage is used, the material employed should extend only down to the dura. Drainage of any kind is generally unnecessary and gauze drainage should never be used. Operation for depressed fracture, whether simple or compound, can generally be done under local anesthesia.

We have come to regard shock as not being an important accompaniment of head injury unless there has been a considerable loss of blood or severe injuries to other portions of the body, such as the chest or extremities. In view of the fact, however, that the majority of head injuries in the present day are produced by automobile accidents, injury confined to the head alone is relatively infrequent. Shock is often present due to associated injury and, during the period of shock, treatment must be directed to this condition. The presence and progress of shock can best be determined by frequent estimations of the blood pressure.

One of the most important fields in the treatment of head injury lies in the prevention of infection in cases of contused scalp lacerations or compound depressed fractures of the skull. The prevention of infection by the proper treatment of scalp lacerations, while not so spectacular as the removal of a large clot, nevertheless offers a wider field for useful surgery. The proper treatment of scalp lacerations is worthy of emphasis in every discussion of head injuries. These lacerations are usually contused and contaminated and, if proper disinfection and debridement are not practiced, infection may result with consequences even more severe than those caused by the associated intracranial injury.

Any patient who has received a head injury sufficient to render him even momentarily unconscious may develop an intracranial clot. It is important, therefore, that in every case a careful neurological examination be made to determine, if possible, whether there is an intracranial clot. Extradural clots probably never occur unless there is a fracture of the skull over some of the branches of the middle meningeal artery. X-ray examination of the skull in suspected cases assists in the diagnosis of an extradural clot. The early removal of an extradural clot before coma sets in gives a high rate of recovery, whereas, if the condition is not recognized until after coma has developed, the mortality is extremely high. There is no condition in which the outlook for recovery should be better than in extradural hemorrhage if the condition is promptly recognized. Subdural hemorrhage is a fairly frequent result of head injury. In many of these cases it is impossible to determine whether the patient's symptoms are due to extensive trauma or whether there is compression from a subdural clot. To definitely establish or rule out the presence of a subdural clot, a burr opening under local anesthesia may be made in the superior temporal line, just above the zygoma. These clots are sometimes bilateral and it may be necessary to make burr openings on both sides.

In the study of head injury we give special place to the clinical observation of the patient. The state of consciousness, temperature, pulse, respiration, condition of the pupils and focal paralyses should be carefully interpreted. Lumbar puncture is often necessary to determine whether the patient has increased intracranial pressure. The persistence of unconsciousness is not necessarily a symptom of increased pressure, nor should it be considered an indication for operation unless supported by other findings. Many patients with midbrain or brain stem injury may be profoundly unconscious and yet the intracranial pressure may be lower than the average normal. In such cases a lumbar puncture will often enable one to decide whether the pressure is elevated and, if so, whether the increase is progressive. We do not think that lumbar puncture is without danger in all cases, no matter how carefully it is done. In extradural hemorrhage or in rapidly increasing pressure due to an intracranial clot of any description, we would consider lumbar puncture dangerous. We have used lumbar puncture after careful neurological study when there appears to be a definite indication. Usually the chief reason for spinal puncture arises from the importance of determining whether or not the patient has elevated intracranial pressure. In the treatment of acute head injuries we think

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it has little value and, as frequently used, it does more harm than good. In a few cases in which life is not at stake but in which the patient continues to have meningeal headache, and when the spinal fluid is bloody, spinal punctures are sometimes beneficial.

In a large percentage of head injuries there is no depressed fracture, either simple or compound, and no intracranial clot. The patient may or may not have a fracture of the skull. He may have bloody spinal fluid and evidence of serious intracranial injury. A few of these cases may require subtemporal decompression as the most effective method of treatment when the life of the patient is threatened by high intracranial pressure. Probably not more than 5 per cent of head injuries would fall in the class requiring subtemporal decompression.

The general nursing care of the patient is of greatest importance in the treatment of head injuries, whether or not operation is required. Among the features of nursing care to be emphasized are—the administration of an adequate amount of fluids, nasal tube feeding being employed if the patient is unconscious; proper posture of the patient in bed, with the head lowered should pulmonary complications develop, and judicious selection of sedatives.

Patients with severe head injury should be kept under observation for a considerable period after discharge from the hospital. The time of their return to work should be determined largely by the patient's condition and the presence or absence of residual impairment. The maximum recovery possible in the individual case will be promoted by (1) adequate primary treatment and (2) careful management of the patient for a variable time, usually months, after discharge from the hospital.

ADOLESCENT BLEEDING

ROBERT A. ROSS, M. D., DURHAM, N. C.

When Doctor Ross used the term adolescent bleeding, he immediately ruled out the organic cases, with infection and tumors constituting the largest group. He also ruled out definite blood dyscrasias. The term, bleeding, is used instead of menstruation, because bleeding in such instances is not true menstrual blood. The old diagnosis for this condition was hypertrophic endometritis, but the correct description in most instances is hyperplasia of endometrium, though occasionally we find atrophy and other dysplasias of the endometrium. This condition is present notoriously at the two extremes of the menstrual life—at the adolescent period and the time of menopause. The basis for this condition, that is most generally accepted now, is a failure between the balance of theelin and progestin. This failure is translated in terms of altered histology of the endometrium. The normal menstrual cycle and histological picture of the endometrium throughout the normal twenty-eight day period is familiar to all. When we find a let down in the theelin level, or a continuation in high concentration, or when we find a progestin failing to be formed or in abnormal concentration, we will find the endometrial picture showing the effect of the abnormality. Our problem in the treatment is to re-establish the normal hormonic balance. Anything that will give relief for a period of several weeks or months is apt to regulate the cycle. There are many levels toward which treatment can be directed. To the hypophysis which in turn will affect the ovary, X-rays are usually employed for this. The thyroid often is at fault, and one feels gratified and encouraged when altered thyroid function is manifest. Proper treatment will suggest itself. The pancreas has been indicted, but here the effect is probably secondary, because we do not know that the ovary is very susceptible to nutritional changes. Insulin has been given for this condition with indifferent results. The uterus itself is treated in practically every instance, because a study of endometrium is necessary for the diagnosis. A thorough curettage will give relief as often as any other agency. Sometimes X-ray and radium are necessary. One should remember, however, the extreme radio-sensitiveness of the young ovary. Very bad results are obtained from over dosage. Rarely in the young individual the uterus must be removed. If pregnancy was possible, we would have an ideal solution for the restoration of normal endometrium. Treatment to the blood itself is being investigated. Lately we have been using moccasin venom for its hemostatic effect. The ideal treatment, though it is probably substitutional, is to give theelin to a certain point, then switch to progestin, thus carrying the endometrium along its normal cycle, preventing an arrest at the interval stage, and allowing the production of the secretory of progestational phase with its subsequent tissue loss and re-establishment of the low post-menstrual

picture and progressive growth from this point. With the new products at hand, we can now do this far better than formerly. Surgery is rarely indicated.

We are most grateful to the VIRGINIA MEDICAL MONTHLY for publishing our "outline" of the foregoing clinical lectures.

While the cruise was not a business meeting, yet those in attendance unanimously and spontaneously by arising thanked Thos. Cook and Son, and the officers and attendants on the *Reliance* for the whole "set-up," which was ideal. Furthermore, request was made that like facilities may be available for cruises in the future.

CLARENCE PORTER JONES,
Secretary.

Public Health Statistics

I. C. RIGGIN, M. D.
State Health Commissioner of Virginia

A compilation of the report of communicable diseases received at the office of the State Department of Health for the month of September shows the following cases compared with the same month in 1935.

	1936	*1935*
Typhoid and Paratyphoid	90	93
Diphtheria	105	122
Scarlet Fever	57	99
Measles	23	25
Meningitis	12	11
Poliomyelitis	15	67
Rocky Mountain Spotted Fever	1	5
Typhus Fever	0	1
Undulant Fever	6	0
Tularaemia	1	3
Smallpox	0	0

HEALTH EDUCATIONAL ACTIVITIES

The Department has recently secured a director of health education and publicity. His office will function as a central disseminating agency for health education through the regular publicity channels. An attempt will be made to interpret in lay terms the scientific facts on disease prevention and health conservation.

As a part of the work, a monthly News Edition of the *Virginia Health Bulletin* will be issued. In the past, bulletins have been published for the most part containing information on particular health subjects. The more useful of these pamphlets are permanently stocked to meet the public's demand. Additional materials in this form will be developed, as indicated. However, for some time the need of a medium to publish current departmental activities, as well as other timely health information, has been apparent. The first issue of the News Edition of this bulletin will appear in the early part of November.

SHELLFISH INVESTIGATIONS

It was reported recently by the Department's bureau of sanitary engineering that 250 establishments in the shellfish industry have been certified by the Department since September. It is expected that by December 1st the Department will have issued certificates to 350 dealers. This work is conducted in close cooperation with the State Commission of Fisheries.

In addition, the Department inspects shucking plants twice monthly. However, it is emphasized that this activity is more to cooperate with the development of precautions to safeguard the purity of seafood products than as a police measure.

Because of the splendid cooperation on the part of the shellfish industry, the number of plants in which modern sanitary equipment has been installed is increasing.

SERVICE AND THE BUREAU OF LABORATORIES

During the first nine months of 1936, the Department's bureau of laboratories has examined 90,780 specimens.

The following statement concerning the bureau was recently made: "The laboratories is for service; first, to the physicians of the State; and then, through them, to the public. The physician who sends in the right kind of specimens will get the right results. To facilitate this, the laboratory furnishes containers free of charge for submitting specimens."

As is known, a postcard addressed to the laboratory, requesting containers, will result in an ample supply being forwarded by return mail.

BIRTH CERTIFICATES

According to a recent report, it is estimated there are approximately but twenty physicians in the State engaged in the practice of obstetrics who are markedly negligent in reporting births to the local registrars.

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The Bureau of Vital Statistics has constantly emphasized the necessity for complying with the regulations. This educational activity and the fine cooperation of the medical profession undoubtedly has had much to do with this satisfactory report.

Woman's Auxiliary to the Medical Society of Va.

President—MRS. FRANKLIN D. WILSON, 5352 Studeley Avenue, Norfolk.

President-Elect—MRS. JAMES B. STONE, 15 Maxwell Road, Richmond.

Corresponding Secretary—MRS. C. C. SMITH, 1219 West Princess Anne Road, Norfolk.

Recording Secretary—MRS. F. O. PLUNKETT, 2 Riverview Place, Lynchburg.

Treasurer—MRS. REUBEN F. SIMMS, 2502 Hawthorne Avenue, Richmond.

Chairman, Press and Publicity—MRS. W. AMBROSE MCGEE, 4107 Kensington Avenue, Richmond.

Report of the Staunton Meeting.

The Fourteenth Annual Meeting of the Woman's Auxiliary to the Medical Society of Virginia was held in Staunton, October 13th through 15th. The Board convened at 9:00 A. M. on Wednesday, October 14th, in the First Presbyterian Church. Immediately following this, at 10:15, Mrs. Fletcher J. Wright of Petersburg, President of the Auxiliary, called the general session to order. At this meeting the reports of all Standing Committee Chairmen and County Presidents were read, and gave an interesting resumé of their activities during the past year. The report of Mrs. Wright, Delegate to the A. M. A. Convention in Kansas City, and the report of Mrs. Southgate Leigh of Norfolk, Delegate to the S. M. A. Convention in St. Louis, gave a delightful account of the two annual meetings, and furnished the local organization with many interesting and "timely tips." The report of the President gave evidence of her untiring efforts and splendid accomplishments in the auxiliary field during her term of office. In her report, Mrs. Wright brought before the house the following recommendation for their serious consideration: "That a bed be maintained by the Auxiliary in a State Tuberculosis Sanatorium (probably Blue Ridge) for use by ill physicians, or any dependent members of their immediate families." This recommendation met with the unanimous approval of the body assembled, was presented in the form of a motion, and carried.

Mrs. Southgate Leigh, Chairman of the Nominating Committee, brought in the following slate of officers for the coming year, which slate was accepted as a whole: President, Mrs. Franklin D. Wilson, Norfolk; President-Elect, Mrs. James B. Stone, Richmond; Vice-Presidents, Mrs. Hawes Campbell, Venter; Mrs. Harold W. Potter, Newport News; Mrs. Meade Edmunds, Petersburg; and Mrs. Robert Woodhouse, Virginia Beach; Corresponding Secretary, Mrs. C. C. Smith, Norfolk; Recording Secretary, Mrs. F. O. Plunkett, Lynchburg; Treasurer, Mrs. Reuben F. Simms, Richmond; Parliamentarian, Mrs. M. N. King, Norfolk; and Historian, Mrs. Southgate Leigh, Norfolk.

At 1:30 P. M. the Annual Auxiliary Luncheon was held at the Stonewall Jackson Hotel in honor of Mrs. Robert Fitzgerald of Wauwatosa, Wis., President of the Auxiliary to the A. M. A., who was the principal speaker, bringing greetings from the National Auxiliary, and an impressive and encouraging message to her "Virginia Sisters." Dr. P. St. L. Moncure of Norfolk, out-going President of the Medical Society of Virginia, and Dr. J. Morrison Hutcheson of Richmond, in-coming President of the Society, as well as Dr. Fletcher J. Wright, member of the Advisory Council, were the other luncheon speakers. Following their addresses, Mrs. Southgate Leigh, acting in the capacity of Parliamentarian due to the absence of Mrs. King, conducted the installation ceremonies, inducting the new officers into office. The Post-Convention Board Meeting was held at 9:00 o'clock Wednesday evening, with Mrs. Wilson presiding.

The social entertainments by the wives of Staunton physicians, of which Mrs. Franklin M. Hanger was in charge, proved to be a source of enjoyment to all visitors. A tea at the King's Daughters Hospital, a drive around Staunton, a visit to the birthplace of Woodrow Wilson, and a reception and dance made up the social program for Wednesday. A trip over the scenic Skyline Drive was scheduled for Thursday, October 15th. This reporter did not take the drive, having made it previously, but is confident that a rare treat was in store for all who went.

The Convention was voted a great success by all who attended. Fifty-two members registered, and a

large number of interested friends were present. Staunton, in its picturesque setting in the Valley of the Blue Ridge Mountains of Virginia, will long be remembered by members of the Auxiliary as a most delightful Convention City.

J. W. S.

Radio Programs.

The 1936-37 series of Radio Broadcasts by the A. M. A. were resumed on October 13th, and will continue weekly until further notice. Tune in each Tuesday afternoon at five o'clock, E. S. T., on the N. B. C. Network for these dramatized broadcasts which were begun last year, and which have proven to be an outstanding advance in the technique of health education.

A Tribute to Mrs. Hodges.*

It is fitting that we pause in homage to the memory of one whom all of us loved—whose interest in this organization was continuous—Mary Gray Hodges (Mrs. J. Allison Hodges).

She was so identified with the social, civic and religious life of this community and state, having occupied so many positions of honor and trust, that many did not know until her death that she was a native of Greensboro, North Carolina, where all that is mortal of her now lies.

She was a member of the old and distinguished Morehead family of that State whose descendants have contributed and still contribute in many ways so much to the progress of North Carolina and to many other states. Altruism, much of which she was unconscious of, was in her blood. Her services and those of Dr. Hodges to Virginia began in their youth, and continued steadily and without interruption.

She was an inspiration to all of us who came in contact with her: her zeal was untiring; her interest never-failing; and her graciousness we shall always remember.

At the time of her death she was serving the State organization as Historian and Chairman of Archives. She, it was, who, realizing more than any of us the importance of keeping permanent records, secured the cabinet with fire-proof files which stands in the office of the State Society. She had written an interesting history of the organization, and it is filed there together with all other records of importance that she collected.

She was the moving spirit in the establishment of the State organization, was president of the Woman's Auxiliary to the Medical Society of Virginia in 1931-32, and she served the Woman's Auxiliary to the Richmond Academy of Medicine as its president.

And so, as we think of her and remember her winsome personality, her kindness expressed in so many unexpected ways, her mirth, her gentleness, and the gracious and graceful way in which she moved among us, we know that our community is finer because she lived in it, and that we are richer because we had her friendship.

To Dr. Hodges we extend our sympathy, and our gratitude also, because of what he, too, has given to us in interest and wise counsel.

(MRS. JAMES K.) LAURA ERVIN HALL.

October 9, 1936.

*Presented to the Woman's Auxiliary of the Richmond Academy of Medicine, at its October meeting.

Truth About Medicine

Propaganda for Reform

Serum Treatment of Acute Poliomyelitis.—In more than one locality this summer the perennial question of the efficacy of convalescent serum in acute poliomyelitis will again be raised. A diagnosis of poliomyelitis can be established in a large percentage of cases days prior to the onset of paralysis, particularly during an epidemic. It is assumed that early diagnosis offers optimal conditions for effective treatment with convalescent serum. While it is contended by some that there is a smaller incidence of paralysis in the group of cases diagnosed in the preparalytic stage than in those seen after paralysis has set in, independent of serum administration, such a conclusion is not certain, as cases seen after paralysis frequently give a history of a prolonged preparalytic phase. However that may be, the practical results that have been obtained in three recent reports are alone enough evidence to warrant continued use of serum. Large doses of convalescent serum (100 c.c. or more) given intravenously and small doses (from 10 to 15 c.c.) intraspinally at the time of the spinal puncture are recommended. The intravenous dosage should be repeated in from twelve to twenty-four hours if the temperature is still elevated or symptoms are not subsiding. If future epidemic results can duplicate those of Jensen (Proc. Roy. Soc. Med. *28*:1007, June, 1935), Clowie (Ann. Int. Med. *8*:521, November, 1934), and Levinson (Illinois M. J., to be published), the treatment of acute poliomyelitis will be satisfactory and harmless to the patient. There is no other treatment that is even of debatable value. The early and continued use of orthopedic measures will improve results in the acute paralytic disease and in cases in which only paresis appears. (*J. A. M. A.*, August 8, 1936, p. 432.)

Injection Treatment of Hernia.—In March, 1936, the Council on Pharmacy and Chemistry of the American Medical Association addressed a questionnaire to a selected list of hospitals, with a view to obtaining data on the injection treatment of hernia. Replies, which were received from most of the institutions addressed, indicated that the method is not used in the majority of the hospitals consulted and that it is considered safe and effective by those using it, although many qualified their opinions as to safety and effectiveness by specifying careful selection of cases. Several unfavorable complications were recorded. The solutions used by various observers included sodium morrhuate; a mixture of phenol, alcohol and oil of thuja; and several mixtures containing tannic acid or tannic acid derivatives. In some of the institutions, preparations of proprietary character, such as the Pina-Mestre solution, Galtanol and Proliferol, were used. Subsequent to the issuance of the questionnaire by the Council, a letter was addressed to *The Journal of the American Medical Association* by some fifty physicians in good standing who have been using the injection method, citing their opposition to some of the criticisms contained in the questionnaire. It is their opinion that the method will develop greater usefulness as it is more definitely understood, as the solutions used are more capably investigated and standardized, and as the limitations and uses of the method are more completely worked out. With this point of view the Council on Pharmacy and Chemistry is inclined to agree. Nevertheless, the following considerations should be borne in mind not only by those expert in the injection method but also by the medical profession in general: The attempted cure of hernia by the application of the method of adhesive inflammation is not new. The method has, however, failed to establish itself as a routine method for the treatment of hernia and is still in an early experimental stage. In view of these facts, surgeons who practice this method should realize the dangers from an ethical, a legal and a financial point of view. Those who continue to experiment with the injection method for the treatment of hernia with a view to standardizing this method will do well to use only such mixtures as may be prepared under their own direction in the laboratory of the hospital with which they may be associated, or mixtures prepared by competent pharmacists according to prescriptions prepared by the physician himself. (*J. A. M. A.*, September 26, 1936, p. 1052.)

Book Announcements

New Books Available to Doctors.

Recent acquisitions at the Library of the Medical College of Virginia available to our readers include:

A classification for medical libraries.

Donaldson, M., and others—Early diagnosis of malignant disease.

Frahm, F. W.—Principles and technics of full denture construction.

Glover, E.—The dangers of being human.

Goodhugh, T.—Prosthetic dentistry.

Greenwood, M., and others—Experimental epidemiology.

Guggenheim, L. K.—Otosclerosis.

Hill and Howitt—Insulin.

Knight, B. C.—Bacterial nutrition.

Kyrle—Hautkrankheiten.

Medical Research Council. Report No. 73. The acquisition of skill.

Medical Research Council. Report No. 74. The prognostic value of some psychological tests.

Medical Research Council. Spec. Rep. No. 208. The course of the oesophagus in health and in disease of the heart and great vessels.

Osborn, H.—Golden rules of dental mechanics.

Penney, W. G.—The quantum theory of valency.

Short, Ham and Pratt—Synopsis of physiology.

Waters, W. A.—Physical aspects of organic chemistry.

Weese, H.—Monographien zur pharmakologie und experimentellen therapie.

American Yearbook (1935).

Berens, C.—The Eye and Its Diseases.

Brande, D.—Wake Up and Live.

Cabot, R. C.—The Art of Ministering to the Sick.

Campbell, C. M.—Destiny and Disease in Mental Disorders.

Cannon, W. B.—Digestion and Health.

Chapman, R. N.—Animal Ecology.

Crile, G. W.—The Phenomena of Life.

Davenport, C. B.—How We Came By Our Bodies.

Dodge, R.—Human Variability.

Dutton and Lake—Parenteral Therapy.

Elliott and Loucks—Solving Personal Problems.

Falk, I. S.—Security Against Sickness.

Forbes, J.—On Percussion of the Chest.

Fox, G. H.—Reminiscences.

Goldberg, J. A. and R. W.—Girls on City Streets.

Haden, R. L.—Dental Infections and Systemic Diseases.

Haldane, J. S.—Organism and Environment.

Hale-White, W.—Great Doctors of the 19th Century.

Halsey, R. H.—How the President, Thomas Jefferson, and Dr. Benjamin Waterhouse Established Vaccination as a Public Health Procedure.

Harrow, B.—The Chemistry of the Hormones.

Hassin, G. B.—Histopathology of the Central Nervous System.

Headley, L. A.—How to Study in College.

Heiser, V.—An American Doctors Odyssey.

Herrmann, L. G.—Passive Vascular Exercise and the Conservative Management of Obliterative Arterial Diseases of the Extremities.

Holmes, S. J.—The Biology of the Frog.

Jennings, H. S.—The Biological Basis of Human Nature.

Joslin *et als.*—The Treatment of Diabetes Mellitus. 5th ed.

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Kappers-Huber-Crosby—The Comparative Anatomy of the Nervous System of Vertebrates Including Man.
Library Handbook for Schools of Nursing.
Locy, W. A.—Biology and Its Makers.
Lull, R. S.—Organic Evolution.
McCulloch, E. C.—Disinfection and Sterilization.
MacEachern, M.—Hospital Organization and Management.
McKie, D.—Antoine Lavoisier: the Father of Modern Chemistry.
Major, R. H.—Disease and Destiny.
Mathews, A. P.—Principles of Biochemistry.
Morgan, J. J. B.—Keeping a Sound Mind.
Moynihan, L.—Truants.
Müller, H. J.—Out of the Night.
Mustard, H.—An Introduction to Public Health.
N. Y. Academy of Medicine—Respiratory Diseases.
Parker and Haswell—Textbook of Zoology.
Pearse, A. S.—Animal Ecology.
Peattie, D. C.—Green Laurels.
Piaget, J.—The Child's Conception of Physical Causality.
Power, D'Arcy—British Masters of Medicine.
Pugh, M. A.—Squint Training.
Radley and Grant—Fluorescent Analysis in Ultra-Violet Light.
Rehfuss, M. E.—The Medical Treatment of Gall-Bladder Disease.
Richmond, W.—The Adolescent Boy.
Richmond, W.—The Adolescent Girl.
Rinehart, M. R.—The Doctor.

Fundamentals of Human Physiology. By The Late J. J. R. MACLEOD, M. D., D. Sc., F R. S., Late Regius Professor of Physiology in the University of Aberdeen, Scotland; Formerly Professor of Physiology, Western Reserve University, Cleveland, Ohio; etc. And R. J. SEYMOUR, M. S., M. D., Professor of Physiology, Ohio State University, Columbus, Ohio. Fourth Edition. St Louis. The C. V. Mosby Company. 1936. Octavo of 424 pages. Illustrated. Cloth. Price, $2.50.

This is an elementary textbook of physiology well adapted for college students who have had no previous scientific courses. There are, however, a few too many omissions and errors to be readily excused—some of which are also characteristic of MacLeod's text for medical students. The book should have been more thoroughly revised by the present author. For instance, he states that it was formerly believed that carotene was vitamin A, since the two were so frequently associated, "but this is apparently not the case." It would have been simpler and more satisfying to have stated what the relationship is. We learn that gout is due to failure of the kidneys to excrete uric acid, and that heart burn or indigestion is a common result of chewing tobacco, since the chewer "depletes the material stored within the gastric glands." No mention is made of the cupulae in the ampullae of the internal ear, but the impression is left that the hair cells are free in the endolymph, and the word *otoliths* and their functions are absent. The proprietary term *"adrenalin"* is often used instead of adrenin or epinephrine, and the gonadotrophic hormone of the anterior pituitary is omitted completely.

An appendix concerning public and personal health is an attractive feature, which includes a brief mention of the more common infectious diseases with their etiology and means of prevention. Unfortunately, the author constantly refers to *germs* rather than bacteria: which term to the reviewer smacks too much of laymen's discussions.

R. J. MAIN, PH. D.

The Science and Art of Nursing. By ELLA L. ROTHWEILER, R. N., Instructor of Nurses, American Hospital, Chicago; Formerly Instructor of Nurses, Deaconess Hospital, Freeport, Ill. With Sections on Physical Therapy by JOHN S. COULTER, M. D., F. A. C. S., Associate Professor and Head of the Physical Therapy Department, Northwestern University Medical School. And a Section on Bandaging and a Unit on First Aid Treatment by FELIX JANSEY, M. D., Instructor in Surgery, Northwestern University Medical School; Formerly Assistant Director of First Aid for the American Red Cross; etc. Philadelphia. F. A. Davis Company. 1936. Octavo of xxi-1196 pages. With over 130 Illustrations. Cloth. Price, $3.00 net.

The text is an elaborate volume of 1196 pages. It is an attempt to present a new type of organization for a nursing textbook. One of the foremost objectives of the author is to present a "real textbook and not a miniature cyclopedia." The other objectives stated imply that the text correlates the philosophy of education and the psychology of the learning process as well as the principles and practice of nursing; that it identify all of life's situations in which the nurse may serve rather than base her training upon hospital conditions alone; that it emphasize the place of the nurse as a teacher of hygiene and preventive medicine; that it incorporate the human interest material which will aid in maintaining the interest of the student; and that it serve primarily for the student and secondarily for the teacher.

The content is divided into eleven units. Preceding each unit there is a table of contents and a brief note to the instructor for the purpose of assisting her in teaching. Preceding each chapter in the unit there is an outline of the subject material to be presented; a list of Latin and Greek forms with important prefixes and suffixes; and a vocab-

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ulary to be spelled, pronounced and defined. Throughout the content special words are marked by asterisks indicating that the nurse should consult the dictionary for definition. Following each chapter there is a supplement to aid in the correlation of the sciences applicable to the foregoing subject matter; a list of projects and questions; suggested references for further study; and an outline for the student's preparation of the lesson.

A perusal of the book impresses one that the author's first objective has been defeated. Every portion of the space in the book has been utilized for the purpose of supplying bits of information that have no relative value to the other material.

The subject matter in general is so inclusive and detailed that it is ambiguous. One wishes that the author had emphasized outstanding principles with fewer words.

RUTH N. HENLEY, R. N.

Parenteral Therapy. A Ready Reference Manual of Extra-Oral Medication for Physicians, Dentists, Pharmacists, Chemists, Biologists, Nurses, Medical Students and Veterinarians. By WALTON FOREST DUTTON, M. D., Formerly Medical Director, Polyclinic and Medico-Chirurgical Hospitals Graduate School of Medicine, University of Pennsylvania; Visiting Physicians to the Northwest Texas Hospital; Colonel, Medical Officers' Reserve Corps, U. S. A.; etc. And GEORGE BURT LAKE, M. D., Formerly Special Lecturer in Hygiene, Purdue University; Editor, *Clinical Medical and Surgery;* etc. Springfield, Ill., and Baltimore, Md. Charles C. Thomas. 1936. Octavo of x-386 pages. Illustrated with ninety half-tones and line engravings. Cloth. Price, $7.50, postpaid.

This book is divided into three sections. The first section is devoted to a discussion of the technique of parenteral therapy. In this portion of the book detailed descriptions of the technique of hypodermic, intramuscular and intravenous injections are given. In addition to this, there are also descriptions of the technique of pericardial puncture, artificial pneumothorax, spinal anesthesia, and alcohol injections for nerve blockage. This section of the book is excellent.

The second section is a therapeutic index in which are listed various diseases and symptoms after which are listed various drugs that are often thought to be of value in treating these complaints; but, like most books which deal with therapeutics, many statements are made which are not generally accepted. One example is found on page 176 in which the author recommends apomorphine to prevent a seizure of apoplexy.

The third section of the book deals with the pharmacology of various drugs. Here various drugs are listed, followed by definition; their action and uses. Here again many statements are made which are highly debatable. For example, on page 307 the statement is made that quinine, when given in doses of 1½ grains for each year of the child's age at 6:00 A. M., 2:00 P. M. and 10:00 P. M., is one of the best remedies for whooping-cough.

In view of the fact that all the subjects covered with this book are probably covered in more detail in the usual textbooks used by students, it is doubtful if much would be gained by having this book in one's library.

HARRY WALKER, M. D.

Physical Diagnosis. By WARREN P. ELMER, B. S., M. D, Associate Professor of Clinical Medicine, Washington University School of Medicine; Assistant Physician to Barnes Hospital, etc. And W. D. ROSE, M. D., Late Associate Professor of Medicine in the University of Arkansas. Seventh Edition. St. Louis. The C. V. Mosby Company. 1935. Octavo of 919 pages. Illustrated. Cloth. Price, $8.00.

Seven editions of any work is ample proof of its real merit. In this last revision, however, the author has made a notable departure from the usual texts on Physical Diagnosis by giving a course on the examination of the normal body and a separate treatise on abnormal findings in disease.

Part I is devoted to subject matter which has been found useful in the course on technique of physical examination and normal findings. Ample space is given to clinical anatomy and physiology of the various systems. Thus it not only lends itself admirably as a textbook for students but it also acquaints the practitioner with long forgotten landmarks. I am convinced that much of the loose methods and therapy we see today is the result of this abysmal ignorance on our part. Many figures showing the topographic relationship of the different viscera are included in this chapter.

Part II deals with the physical diagnosis of disease. Much of this space is devoted to diseases of the thorax, all of which is handled in an admirable manner. The chapter on cardiac irregularities is particularly instructive including a comprehensive outline of electrocardiography.

The value of the book would have been greatly enhanced if abdominal diagnosis had been treated in an equally effective manner.

WM. H. HIGGINS, M. D.

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Editorial

Our New President.

Dr. James Morrison Hutcheson of Richmond was installed as president of the Medical Society of Virginia, at its recent meeting in Staunton. The Society could not now have made a better selection than Dr. Hutcheson, who is not only a physician of the highest type but a leader of great intellect and unquestioned integrity.

Dr. Hutcheson was born in Rockbridge County, Virginia, on March 22, 1883, of forbears who were physicians. His grandfather and great-grandfather, and two uncles were physicians of Rockbridge and besides he has doctor relations practicing in other sections. He is, as his name would imply, of Scotch descent. He went to local schools in Rockbridge and then to Washington and Lee University, where he was graduated in the Class of 1902 with the degree of A. B. It must be a satisfaction to him and to the University that he is now a member of the Board of Trustees of Washington and Lee. In fact, Dr. Hutcheson's interest in and services to education have been noteworthy. After his graduation he taught for three years in boys' schools in Virginia and North Carolina, and while a student at the Medical College of Virginia he taught mathematics for four years in the Woman's College in Richmond. Soon after graduating from the Medical College of Virginia he began teaching in the College as instructor and in 1914 he was made professor of therapeutics and for the last ten years he has been professor of clinical medicine. Beside all this he was for some years a member of the board of education of the City of Richmond (1913-1918).

His clinical medical record started with his having been selected by Dr. George Ben Johnston as interne for the Johnston-Willis Hospital which had just opened that year, 1909. In 1910 he did postgraduate work at Johns Hopkins Hospitals and in 1911 at the Massachusetts General Hospital in Boston. For several years he was associated with Dr. Douglas VanderHoof in the practice of internal medicine. In 1917 Dr. Hutcheson volunteered for service in the World War, was made first lieutenant and reported to the general hospital at Camp Jackson, South Carolina. From there he went overseas as chief of the medical service of Base Hospital No. 60, was promoted to the rank of major and later became commanding officer of his organization. He was discharged from the army July 2, 1919, and since 1920 he has been practicing medicine in Richmond as an internist. He has become recognized as an authority on cardiovascular disease. He has always been interested in bedside work and while teaching in the hospital division of the Medical College of Virginia he has given himself unstintedly to attending these eleemosynary cases and to teaching medical students how to examine pa-

tients without fan flare, how to diagnose logically and how to practice without being led away by fads and fancies.

In medical organizations Dr. Hutcheson has been a leader. He has been president of the Alumni Association of the Medical College of Virginia (1932-33), attending physician and member of the Board of Directors of the Johnston-Willis Hospital, consulting physician of the Tucker Sanatorium, member of the committee for securing funds and erecting the building of the Richmond Academy of Medicine, member of its Board of Trustees and its president (1931-32), member of the American College of Physicians since 1919, and governor for Virginia of this organization, and vice-president of the Tri-State Medical Association. Dr. Hutcheson was given honorary membership in Phi Beta Kappa by Gamma Chapter of Virginia in 1922.

His services to the Medical Society of Virginia deserve especial mention. He has been an active member of this Society since 1910, a regular attendant at its meetings, frequently serving in its House of Delegates, and he has been a first vice-president of the Society. The papers he has contributed have been of high order. As the new president of the Medical Society of Virginia he has the admiration and respect of its members who are glad to have the leadership of the Society in such tried and safe hands.

JAMES MORRISON HUTCHESON, M. D.,
President, Medical Society of Virginia.

In 1921 Dr. Hutcheson married Miss Margaret Miller of Richmond and they have three children. Dr. Hutcheson has taken an active part in the cultural and social life of Richmond where his advice is sought on many non-professional as well as professional matters. His is a gracious personality and he has a host of friends and admirers.

In general it might be said that in medicine Dr. J. Morrison Hutcheson is a progressive conservative, adopting new ideas and methods when his reason tells him they are sound and he has attained a high reputation and extensive practice. Personally without piety, cant or braggadocio he is self-respecting though always courteous to others but never fawning. He is kind though positive, intellectually honest, scholarly, widely read and logical. With it all he is human, has a keen sense of humor and is a delightful companion, a sincere friend, and a true gentleman.

The Medical Society of Virginia is fortunate again in its choice of president.

BEVERLEY R. TUCKER, M. D.

Football and the Medical Profession.

The medical profession is becoming more concerned with football injuries. And well it may, for as surely as its work increases in the summer as a result of the swimming pool, its work increases in the fall as a result of the gridiron. Books by doctors and articles in the medical press are appearing frequently on the subject, analyzing statistics and suggesting remedies. It is hoped that these studies will find their way into the hands of those who control college and high school athletics, and that they will help crystallize into sane action the wavering opinion of parents and public in general. To the rules committees must be entrusted the changes in plays necessary to create a safe game, but in the meantime to the physician belongs the responsibility for the care and treatment of the injured.

It is apparent that medical science can teach football coaches how those under their tutelage can play the game with a minimum of physical risk.

The general principles governing fractures and how they are sustained are well known and can be applied to the athletic field. Some progress has been made due to a study of the incidence of various injuries, and supporting and protecting apparatus is better than it was formerly.

Football coaches do not seem to realize the increased risk of continued play to the slightly injured, tired or groggy player. Coaching benches are far from the line of play. Coaches follow the progress of the ball and are absorbed in the major strategy of the game. They want to win. Their own future depends upon winning. They are ill-fitted to decide when a player's physicial condition is a menace to himself. A disinterested physician should be an official of every game. He should follow the ball from the sidelines on the line of scrimmage. He should be provided with a whistle. He should order from the game any player on either side whose physical condition makes further play dangerous. He should go immediately to the aid of any injured player, determining the seriousness of the injury and deciding whether or not he may remain in the game. The practice of jerking supposed dislocations back into place or of carelessly moving the injured from the field should stop. The danger of compounding a simple fracture by inexpert manipulation or injudicious handling should be realized and the injured player usually should be borne from the field on a stretcher.

The locker room treatment admired by athletes and boasted by well-intending athletic directors should be under medical supervision. If it were, heat and rest would take the place of jerking, pulling and massaging that so frequently is the lot of an injured extremity. Even when the damage is confined to the soft parts, it may involve muscle, tendon, blood vessel and nerve in a variety of combinations, most of which cannot possibly be helped by the big hands and powerful liniments of the strong-armed force reigning and reverenced in the locker rooms of high school and college.

Department of Clinical and Medical Education of the Medical Society of Virginia

Clinician in Pediatrics Appointed.

In response to the wide demand throughout the State for post-graduate courses in Pediatrics, the Department has happily obtained the services of Dr. Jay M. Arena as field clinician. Dr. Arena at the time of his appointment was an associate in pediatrics on the staff of the Duke University Medical School. His extensive training at the University of Rochester, Johns Hopkins, Vanderbilt, University of Chicago and the University of Iowa indicate that he is well equipped for his new work. Those with whom he has worked have all expressed their highest confidence in his ability and training in the field of pediatrics. He has been a frequent contributor to the *Journal of Pediatrics, Southern Medical Journal, Southern Medicine and Surgery,* and other medical journals.

Those who attend the clinics at the University of Virginia on November 6 will have an opportunity to meet and hear Dr. Arena who has been invited to appear on that program. He is now available to local medical societies in the State for post-graduate courses in Pediatrics.

Obstetrics and Gynecology.

The Department's field clinician in Obstetrics and Gynecology, Dr. L. L. Shamburger, appeared on the program of the Clinch Valley Medical Society at Lebanon on September 19. He was scheduled to discuss Eclampsia on the program of the Southwestern Virginia Medcial Society at Wytheville on September 26, but an unfortunate accident to his materials prevented his appearance.

Following the endorsement of the Department's post-graduate program by the Clinch Valley Medical Society, Dr. Shamburger, since September 28, has been conducting a post-graduate course in Obstetrics and Gynecology in Lee and Wise Counties. During each of five weeks he spends two days a week at Pennington Gap, Stonega and Norton. At each place he holds a clinic on the first day and devotes the remainder of his time to office visits and consultations with the doctors in the vicinity of these

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centers. The course in Lee and Wise Counties will terminate on November 7 at which time other circuits will be arranged in counties and cities where local medical societies make the request. Frequent requests are coming from counties where the clinician has conducted courses for him to return for consultations and conferences. These are often possible between programs and Dr. Shamburger will be pleased to make such visits whenever possible.

Clinics at the University of Virginia.

The University of Virginia Department of Medicine announces its Eighteenth Series of Post-Graduate Clinics to be held at the University of Virginia Hospital on Friday, November 6. The clinics will be conducted by members of the several Departments of the Medical School and possibly other invited doctors. In connection with each clinic opportunity will be offered for questions and discussion.

You are cordially invited to attend this program. Reserve this date on your calendar now. An announcement of the complete program will be sent to you shortly before the time for the clinics. This program is being arranged by Dr. L. T. Royster, Chairman, Committee on Graduate Clinics.

Local societies wishing to avail themselves of the services of the clinicians in Obstetrics and Gynecology and in Pediatrics for either post-graduate courses or local programs should address the Acting Executive Secretary, John Alex. Rorer, Department of Clinical and Medical Education, Box 1487, University, Virginia.

Proceedings of Societies

Orange County Medical Society.

At the regular meeting of this Society held on October 2nd, the following officers were elected: President, Dr. O. N. Shelton; vice-president, Dr. J. P. Hankins; and secretary, Dr. G. R. Elliott. All officers are from Orange.

The Northampton County Medical Society

Held its regular quarterly meeting at the Northampton-Accomac Memorial Hospital, on October 7th, with Dr. J. M. Lynch, Cape Charles, presiding. Dinner was served by the Hospital.

Dr. Griffin W. Holland, Eastville, was re-elected to represent the Society on the Board of Trustees of the Hospital, for a term of four years. He and Dr. W. J. Sturgis, of Nassawadox, have acted in this capacity since the founding of the Hospital.

Dr. H. B. Magill, Director of the Northampton County Health Unit, in cooperation with the Society, is arranging for immunization of certain school children who had failed to receive the required treatment. The general practitioners will give the immunization treatment after Dr. Magill has arranged the time and place.

Cases, X-rays, and a discussion of "Injuries to the Elbow" was presented by Dr. H. L. Denoon, of the hospital staff.

Dr. W. C. Henderson, Nassawadox, is secretary of this Society.

Lynchburg Academy of Medicine.

At the meeting of the Academy held on October 5th, Dr. C. H. Patterson of Lynchburg, presented an interesting paper on "Pruritus."

Drs. Joseph William Houck and Frederick McCulloch Morrison, both of Lynchburg, were elected to membership.

Dr. J. H. Rawlings and Dr. John Hundley, Jr., are president and secretary, respectively, of the Academy.

Roanoke Academy of Medicine.

The first meeting of the year of this organization was held on October 5th, at which time the new officers were installed.

The following scientific program was presented: Dr. Littleton Davis, Non-Surgical Pyloric Stenosis; Dr. Linwood D. Keyser, Modern Applications of Urinary Antiseptics; and Dr. R. H. Garthright, The Centenarians.

Dr. Fred E. Hamlin is the newly installed president and Dr. J. M. Bishop, secretary-treasurer.

The Southside Virginia Medical Association

Held its regular quarterly session at the Piedmont Sanatorium in Burkeville on September 8th, with a good number present. Dr. L. S. Early of Petersburg presided and the meeting was opened with a prayer by Morgan B. Raiford, who also acted as secretary.

All papers on the program were read and freely discussed.

A committee composed of Dr. Wright Clarkson, Dr. W. M. Phipps and Dr. J. M. Bailey was appointed to draw up resolutions relative to the passing of our honored member and past president, Dr. S. E. Gunn of Hopewell.

Dr. T. Addison Morgan of Franklin was elected an active member.

Following the program, the members and visitors were entertained at a delightful dinner by the management of the hospital. The next meeting will be on the second Tuesday in December in Petersburg.

News Notes

Our Staunton Meeting—"Gone But Not Forgotten".

The memories of our sixty-seventh annual meeting in Staunton, October 13th-15th, will linger for many days with those who attended, for the members of the Augusta County Medical Association proved themselves to be ideal hosts. There was an attendance of well over four hundred besides the ladies. In addition to the addresses of welcome, and those by Dr. P. St. L. Moncure, president, and Dr. William D. Haggard, invited guest of Nashville, Tenn., on the first evening, Mr. McManaway, Superintendent of the Virginia School for Deaf and Blind, presented a number of the students with teachers to show just what has been accomplished with some of the children at that institution. Following the regular program, there was a smoker and a reading and music were enjoyed while refreshments were served.

On Wednesday, a number of interesting scientific papers were presented and Dr. Lloyd W. Ketron, invited guest from Baltimore, gave his address on "Tuberculosis of the Skin." The evening was given over to social affairs and a number of doctors met in dinner groups. The dance later proved a good means for better acquaintance and was most enjoyable.

A symposium on the Endocrine Diseases was a part of the last session on Thursday, at the close of which Dr. J. Morrison Hutcheson of Richmond, was installed as president for the coming year.

The exhibits were attractively displayed and proved of much interest to the doctors.

The business sessions were well attended. The minutes of these will be published in the December issue of the MONTHLY. The following officers were named: President-Elect, Dr. G. F. Simpson, Purcellville; vice-presidents, Dr. Joseph T. Buxton of Newport News, Dr. Hugh H. Trout of Roanoke, and Dr. Guy R. Fisher of Staunton; secretary-treasurer, Miss Agnes V. Edwards of Richmond. Dr. Wright Clarkson of Petersburg, and Dr. Roshier W. Miller of Richmond, were re-elected as delegate and alternate, respectively, to the meeting of the American Medical Association, Drs. J. C. Flippin and W. B. Martin holding over as delegates and Drs. Carrington Williams and I. C. Harrison as alternate-delegates. Members of the Council elected for a term of two years are Dr. Julian L. Rawls of Norfolk, Dr. C. E. Martin of North Emporia, Dr. John Hundley, Jr. of Lynchburg, and Dr. J. E. Knight of Warrenton, those in the odd numbered districts remaining in office for another year.

Invitations for 1937 were received from the Roanoke Academy of Medicine for Roanoke; the Warwick and Elizabeth City County Societies and Virginia Peninsula Academy of Medicine for the Chamberlain at Old Point Comfort, and the Cavalier Hotel for Virginia Beach. Upon vote, the selection of the place of meeting was left to the Council at its winter meeting.

A report of the meeting would be incomplete without saying that the members of the Woman's Auxiliary and the other ladies present added much to the success of the meeting. A statement as to their meetings appears under the heading of Woman's Auxiliary to the Medical Society of Virginia in this issue of the MONTHLY.

The Virginia Pediatric Society

Held its annual luncheon meeting in Staunton during the meeting of the State Society and elected the following officers for the ensuing year: President, Dr. R. H. DuBose of Roanoke; vice-president, Dr. G. Richardson Joyner of Suffolk; and secretary, Dr. W. Ambrose McGee (re-elected) of Richmond.

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The Clinical meeting will be held in the Spring and the Program Committee was empowered to select the place and name the date for this.

The Virginia Urological Association

Held its third annual meeting at the Stonewall Jackson Hotel in Staunton, October 14th, at 6:30 P. M. Following the annual banquet a business and scientific program was held. Dr. E. W. Kirby was elected to membership and officers for 1936-37 were elected as follows: Dr. A. I. Dodson, Richmond, President; Dr. R. W. Upchurch, Danville, Vice-President; Dr. L. D. Keyser, Roanoke, Secretary-Treasurer.

The scientific program consisted of interesting case reports by Dr. W. W. S. Butler of Roanoke, Dr. John H. Neff of University of Virginia, Dr. R. W. Upchurch of Danville, and Drs. A. I. Dodson, L. T. Price and T. B. Washington of Richmond.

Virginia Orthopedic Society.

This Society held a business meeting at Staunton during the meeting of the Medical Society of Virginia, with Dr. H. Page Mauck of Richmond, presiding. Dr. J. Blair Fitts of Richmond and Dr. B. H. Kyle of Lynchburg, were elected president and secretary, respectively, for the coming year.

Dr. E. C. Harper, in charge of the Crippled Children's Bureau of the State Department of Health, was the speaker at this meeting. He has charge of the Federal funds for the care of crippled children in Virginia and explained how his organization is trying to locate all crippled children in the State with a view of placing them in one of the State hospitals for crippled children, at Richmond or Charlottesville, for treatment when necessary, and stated that they would be kept under supervision after leaving the hospital as long as necessary that they may be made self-supporting and useful citizens.

The Virginia Society of Obstetricians and Gynecologists

Had a dinner meeting at the Stonewall Jackson Tavern, just outside of Staunton, on the evening of October 14th, with Dr. T. J. Williams and Dr. J. M. Nokes, both of the University of Virginia, as president and secretary, respectively. Thirteen of the thirty-six members of this organization were in attendance. Dr. N. J. Eastman, professor of Obstetrics at Johns Hopkins University, Baltimore, was the invited guest and gave an illustrated lecture following the dinner, his subject being "Obstetrics in China."

Dr. M. P. Rucker of Richmond was elected president for the coming year, Dr. F. O. Plunkett of Lynchburg, vice-president, and Dr. E. S. Groseclose, also of Lynchburg, secretary-treasurer. The Society voted to have two meetings a year—a travel one in April to visit clinics out of the State and the annual session at the time of the State Society meeting.

The Virginia Roentgen Ray Club

Also held a dinner meeting in Staunton at the time of the State meeting and discussed matters pertaining to its specialty. Dr. Fred M. Hodges, Richmond, is president and Dr. V. W. Archer, University of Virginia, secretary of the Society.

The Virginia Section, American College of Physicians,

Selected the time of the State Society meeting for its sectional gathering under the presidency of Dr. J. Morrison Hutcheson of Richmond, also Governor for this State. At the dinner meeting at the Stonewall Jackson Tavern near Staunton, Dr. E. B. Bradley, invited guest of Lexington, Ky., spoke on the Certification of Internists. Dr. Walter B. Martin of Norfolk was elected president, Dr. Charles M. Caravati of Richmond, vice-president, and Dr. F. C. Rinker of Norfolk, secretary.

Married.

Dr. Clyde G. O'Brien, Appomattox, Va., and Miss Ellen Elizabeth Sweizer, Elm Grove, W. Va., October 11th. Dr. O'Brien is a member of the class of '34, Medical College of Virginia.

Dr. Brooke B. Mallory,

Class of '35, University of Virginia, Department of Medicine, after completing his internship at the Roanoke (Va.) Hospital, has located for practice at Lexington, Va.

Dr. C. Augustus Simpson,

Washington, D. C., announces that Dr. Francis A. Ellis, associate in dermatology at Johns Hopkins University Hospital and Dispensary and also associate in dermatology and syphilology at the University of Maryland Medical School and Hospital, is now associated with him in the practice of dermatology and syphilology, with offices at 1610 Twentieth Street, Northwest, Washington.

The Southern Medical Association

Will hold its thirtieth annual meeting in Baltimore, Md., November 17th-20th. All of the scientific and sectional meetings, as well as the technical and scientific exhibits, will be held in the new Fifth Regiment Armory. From a scientific and clinical standpoint this meeting promises to be most interesting. Particular attention is being given to the various specialties, and an unusual effort is being made to interest the general practitioner.

Baltimore has clinical facilities and hotel accommodations to take care of all visitors with comfort. Extra-scientific activities will be numerous, including golf, boat trips, theatres, as well as many things of historic and picturesque value. Plans are being made for an official After-Baltimore Cruise down the Chesapeake Bay, leaving late on Friday afternoon, November 20th, visiting Yorktown, Jamestown and Williamsburg, and returning to Baltimore early Sunday morning, November 22nd.

The Profession in Baltimore, as entertaining hosts, and the Southern Medical Association extend a cordial invitation to all members of the Medical Profession to attend this convention.

We hope that every Virginia doctor who can will attend this meeting and boost it in every way as one of our own members, Dr. Fred M. Hodges of Richmond, is president.

Dr. Hugh L. C. Wilkerson,

Class of '33, Medical College of Virginia, who has been stationed on the U. S. S. *Unalga*, C. G., San Juan, Puerto Rico, has been transferred to the U. S. Marine Hospital, St. Louis, Mo.

Post-Graduate Course in Otolaryngology and Ophthalmology.

The third post-graduate course in otolaryngology and ophthalmology was held at the University of Virginia the last week in October. The courses in otolaryngology were conducted by Dr. Perry Goldsmith, Toronto; Dr. Gabriel Tucker, Philadelphia; Dr. J. R. Richardson, Boston; and Mr. E. B. Burchell, New York. Drs. Bernard Samuels, Webb Weeks, John Wheeler and J. W. White, all of New York, and Dr. Harry Gradle of Chicago, conducted the courses in ophthalmology.

Changes in Health Districts.

Dr. John R. Massie, class of '34, Medical College of Virginia, has been appointed Director of the Dickenson-Lee-Wise Health District, with headquarters at Norton, Va., effective October 1, 1936, succeeding Dr. C. H. Reagan.

Dr. Joseph L. Hundley, who graduated from the University of Virginia in 1934, has been appointed Director of the Wythe County Health Department, with headquarters at Wytheville, Virginia, effective October 1, 1936, succeeding Dr. David H. Andrew.

Both Dr. Reagan and Dr. Andrew have been granted a leave of absence to accept fellowships to Johns Hopkins University School of Hygiene and Public Health. In addition to these, Dr. J. N. Dudley, Jr., who was with the Henrico Health Unit and Dr. William Grossmann, recently assistant State epidemiologist, are on fellowships at Hopkins, and all are preparing to receive their certificates of Public Health in June, 1937.

The Ex-Interns' Association of St. Elizabeth's Hospital

Opened its thirteenth annual meeting in Richmond, Va., on October 6th, with a clinic in the morning, conducted by Dr. J. Shelton Horsley and members of the staff of the hospital. The operative portion of the clinic consisted of excision of large Meckel's diverticulum with subacute and chronic bleeding peptic ulcers in displaced gastric mucosa. Following the operation there was demonstration of patients, slides and specimens of several interesting cases of malignancy of the large bowel.

As guests of Dr. Horsley, the Association met for luncheon at the Commonwealth Club at one o'clock. After this there was the business session and the following officers were elected for the coming year: President, Dr. W. K. Dix, Richmond; vice-president, Dr. H. D. Fitzpatrick, East Radford; secretary-treasurer, Dr. John S. Horsley, Jr., Richmond.

When the meeting adjourned, the members went immediately to the Auditorium of the Richmond Academy of Medicine for the presentation of a portrait of Dr. J. Shelton Horsley to St. Elizabeth's Hospital by the Ex-Interns' Association. This was painted by Mordi Gassner. Dr. R. W. Upchurch, President of the Association, presented the portrait which was unveiled by John Shelton Horsley, III, and which was accepted for the hospital by Dr. W. H. Higgins. The guest speakers for the occasion were Dr. Stuart McGuire, of Richmond, and Dr. J. M. T. Finney, of Baltimore.

The members of the Association, staff of the hospital, guest speakers, and wives were delightfully

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entertained at supper at "Greystone," the home of Dr. and Mrs. J. Shelton Horsley.

The following members were present at the meeting: Drs. W. K. Dix, D. G. Chapman, A. I. Dodson, Guy W. Horsley, John S. Horsley, Jr., A. A. Houser, W. A. McGee, and H. J. Warthen, Jr., of Richmond; Dr. W. C. Caudill of Pearisburg; Dr. Wright Clarkson of Petersburg; Dr. M. L. Breitstein of Baltimore; Dr. P. C. Colonna of New York; Dr. J. Meriwether Hurt of Blackstone; Dr. H. D. Fitzpatrick of East Radford; Dr. H. H. Harris of Anderson, S. C.; Dr. Guy R. Fisher of Staunton; Dr. Paul McBee of Bakersville, N. C.; Dr. R. W. Upchurch of Danville; and Dr. R. J. Walker, Jr., of Tarboro, N. C.

Medical Advisory Board.

Dr. E. C. Harper, director of the Crippled Children's Bureau of the State Department of Health, has secured an Advisory Committee composed of four members of the medical profession and three laymen to confer with him in his work. The members of the Medical Advisory Board are Dr. C. B. Bowyer of Stonega, from the Medical Society of Virginia, Dr. W. T. Graham of Richmond, from the Virginia Orthopedic Society, Dr. Samuel Newman of Danville, from the Virginia Pediatric Society, and Dr. I. K. Redd of Ellerson, as representing the general practitioners of the State.

News from University of Virginia, Department of Medicine.

Dr. Alfred Chanutin, Professor of Biochemistry, was awarded the Phipps and Bird Prize of $100.00 for his paper on "The Effect of Whole Dried Meat Diets on Renal Insufficiency Produced by Partial Nephrectomy," submitted in competition with papers selected by the State Academies of Science of North Carolina and South Carolina. The three competing papers for this Prize were those selected by the three State Academies for the award of the Phipps and Bird Gold Medal Prize.

Dr. J. Edwin Wood participated in the symposium on Diseases of the Heart and Kidney, held at Duke University, October 15th-17th. Dr. Wood spoke on the subject of "Recent Advances in the Study of Rheumatic Fever" and "The Use of Diuretics in Edema."

Dr. C. C. Speidel presented a paper on "The Experimental Induction of Visible Structural Changes in Single Nerve Fibers in Living Tadpoles" in the symposium on Excitation Phenomena held last August at the Biological Laboratory at Cold Spring Harbor, New York.

At the meeting of the University of Virginia Medical Society on October 5th, Dr. W. W. Waddell read a paper on "Premature Infants" and Dr. J. E. Kindred spoke on the subject of "Quantitative Studies in Lymphoid Tissues."

Dr. D. C. Wilson spoke on the subject of "Maladjustment as a Cause of Mental Disease" before the Wake County Medical Society of North Carolina on August 13th.

News from Jefferson Medical College.

The 112th annual session of the Jefferson Medical College of Philadelphia was inaugurated on the evening of September 21, 1936, in the Assembly Hall of the College.

Mr. Robert P. Hooper, Acting President of the Board of Trustees, presided, and the Introductory Lecture was delivered by Thomas A. Shallow, Professor of Surgery, on "Medical Progress."

Dr. Ross V. Patterson, Dean of the College, welcomed the 522 members of the student body. Of this number 140 are new students, 130 being admissions to the First-Year Class and ten to the Third-Year Class. The members of the First-Year Class were prepared for medical study in sixty-nine different institutions; all of them have pursued and completed four years of preliminary and preparatory study and have graduated from these institutions before being admitted to the medical course. Thirty-nine members of the First-Year Class are sons or other relatives of physicians, and of these thirty-nine, sixteen are sons of Jefferson graduates. Geographically, twenty-six different states and insular possessions are represented in the freshman class.

News Notes of Duke University School of Medicine.

On August 20th, Dr. William A. Perlzweig spoke at the School of Bacteriology, Workers' University of Mexico, on Recent Advances in Clinical Chemistry in the United States.

On September 29th, the North Carolina Neuropsychiatric Association held a meeting at Duke Hospital with Dr. R. S. Crispell. Means of pro-

moting mental hygiene work in the State were discussed.

On October 5th, the autumn quarter of the School of Medicine commenced, with an enrollment of 242 students, and the autumn quarter of the School of Nursing with an enrollment of 80, three of whom are post-graduate students.

On October 15th, 16th and 17th, Duke University School of Medicine held its third annual symposium, this year on diseases of the heart, circulation and kidney. Sixteen physicians and surgeons participated in the program, representing the medical schools of Harvard, Virginia, Johns Hopkins, Western Reserve, University of North Carolina, Emory, Pennsylvania, Cincinnati, University of Minnesota and Mayo Clinic. The symposium was attended by approximately 600 physicians.

Medical Exhibit Richmond Bi-Centennial, 1937.

The medical profession of Richmond, Va., is planning, as a contribution to the city's Bi-Centennial Celebration in 1937, an ambitious exhibit portraying the medical progress of the city and State during the past 200 years. The committee is in search of material of medical interest to Virginians, and loans from whatever source will be gratefully received.

Dr. C. C. Choi,

Of the class of '35, Medical College of Virginia, after serving a year's internship at the U. S. Marine Hospital at New Orleans, La., has returned to his home in Korea.

The American Association of Obstetricians, Gynecologists and Abdominal Surgeons

Held its last meeting in September at Bretton Woods, N. H. At this time, Dr. James W. Kennedy of Philadelphia, was installed as president, and the following officers elected: President-Elect, Dr. Paul Titus of Pittsburgh, Pa.; vice-president, Dr. Willard R. Cooke, Galveston, Tex.; secretary, Dr. James R. Bloss (re-elected) Huntington, W. Va.; assistant secretary, Dr. L. A. Calkins of Kansas City, Mo.; and treasurer, Dr. L. F. Smead (re-elected) of Toledo, Ohio. It was voted to hold the 1937 meeting at Hot Springs, Va., at which time the Association will celebrate its fiftieth anniversary.

Dr. Rexford A. Burdette,

Class of '33, Medical College of Virginia, was recently named director of the Monongalia County (W. Va.) health department.

Dr. Edward B. Richey,

Who practiced for a time in Lynchburg, Va., has moved to Miami, Fla., where he will continue the practice of medicine. He has offices at 1435 Southwest 14th Street.

The William Hallock Park Laboratory

Of the Department of Health of New York City was dedicated on October 6th. The exercises also honored Dr. William H. Park who has given over forty-three years of distinguished service to the promotion of public health. Following the exercises, the laboratory was open for inspection.

The National Drug Company,

Philadelphia, Pa., one of the advertisers in the MONTHLY, has just issued a handsome 356-page catalog which is a complete list of biological, biochemical, specialty and pharmaceutical products of their manufacture. This list is conveniently arranged as a ready reference and contains a valuable epitome of biological terms and explicit information on their products. Why not write for a copy?

Dr. Ira C. Long,

Formerly of Radford, Va., but more recently located at Morehead City, N. C., is not connected with the staff of the State Hospital at Goldsboro, N. C.

Dr. William S. Francis

Has located at Marion, Va., where he is engaged in the general practice of medicine. He graduated from Tulane University Medical School in 1935 and recently completed an internship at the Iowa Lutheran Hospital in Des Moines.

Dr. H. Cantor,

Petersburg, Va., attended the Clinical Congress of the American College of Surgeons in Philadelphia and from there went to the Ninth Annual Graduate Fortnight of the New York Academy of Medicine on Traumatotherapy in New York City.

Dr. Milford M. Greenbaum,

Who graduated from the Medical College of Virginia in 1934, announces the opening of his office for the practice of medicine and surgery at 65 Academy Street, Poughkeepsie, N. Y.

XUM

Dr. Jos. W. Houck,

Recently a resident physician at the University of Virginia Hospital, has located in Lynchburg, Va., where he is associated with Dr. Don Preston Peters in the practice of general surgery and gynecology.

Dr. and Mrs. Houck are receiving congratulations on the birth of a son, now ten weeks old.

Dr. R. C. Ruggieri,

Italian vice-consul at Norfolk, Va., was the principal speaker at the Columbus Day celebration in Richmond, Va., on October 12th, his subject being "The Significance of Columbus Day and Its Effect on Virginia Italians."

Dr. R. T. Hawks,

Carson, Va., has been elected vice-president of the Community League of that place for the coming year.

City Coroners of Richmond.

Dr. John H. Scherer and Dr. Paul Kimmelstiel of the department of pathology at the Medical College of Virginia have been appointed as city coroners of Richmond, Va., succeeding the late Dr. James M. Whitfield.

Dr. R. T. Akers,

Alum Ridge, Va., was recently elected chairman of the Floyd County School Board.

Dr. William R. Weisiger,

Richmond, Va., was among those attending the reunion, dinner and clinics of the Ex-House Surgeons' Society of the Manhattan Eye, Ear and Throat Hospital in the early Fall.

New Unit of Hospital to be Opened.

The new unit of the Eastern State Hospital on the Dunbar Farm near Williamsburg, Va., is nearing completion and the transfer of about two hundred of the patients to the two new dormitories is expected to take place about the middle of November. In addition to the dormitories, the new unit will include a nurses' home, administration building, a kitchen, dining room and a heating plant.

For Sale—

Sanatorium ideally located. Suitable for maternity, nervous and mental, or convalescent cases. Price reasonable and terms liberal. (See advertising page 3.) For further information, communicate with Douglas E. Taylor, Real Estate, 815 East Franklin Street, Richmond, Va. (*Adv.*)

Convalescent or Re-Adjusted Mental Patient

Can be taken care of at reasonable rate on seventy-acre farm on Mobjack Bay, Virginia. Daily psychiatric observation. Correspondence with physicians solicited. Address Dr. P. G. Hamlin, Motorun, Virginia. (*Adv.*)

For Sale—

Latest model Sanborn Metabolor. Fully equipped. Practically new. Price reasonable. Address "Metabolor," care this journal, 1200 East Clay Street, Richmond, Va. (*Adv.*)

Obituary Record

Dr. Herbert Wallis Lewis,

Well-known physician of Dumbarton, Va., died October 16th, after a long illness. He was a native of Culpeper County, Va., and was fifty-nine years of age. Dr. Lewis received his medical degree from the former University College of Medicine, Richmond, Va., in 1903. He had practiced in Richmond and Henrico County since that time, and had been a member of the Medical Society of Virginia for thirty-two years. Dr. Lewis is survived by his wife and a daughter.

Dr. William Humphrey Drewry,

Badin, N. C., died October 1st. He was a native of Drewryville, Va., and thirty-five years of age. Dr. Drewry graduated from the Medical College of Virginia in 1926. His wife and two sons survive him.

Dr. Leslie Ballard Evans,

Windsor, N. C., died July 31st. He was sixty-seven years of age and a graduate of the former University College of Medicine, Richmond, Va., in 1900.

Dr. Everett F. Long,

High Point, N. C., died July 5th, at the age of fifty-eight. He was a graduate of the Medical College of Virginia, class of '09.

Dr. Irvine White Patton,

Ajo, Ariz., died July 1st, of chronic myocarditis. He was sixty-four years of age and received his medical degree from the University of Virginia in 1895.